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# PhotoPlus

THE **CANON** MAGAZINE

Issue 100 • May 2015

100<sup>TH</sup> ISSUE SPECIAL!

## THE 100 BEST-EVER CANON PRO TECHNIQUES

Priceless advice from the world's best pros

## GRAND DESIGNS

How to capture modern  
European architecture



WIN!  
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NEW IN-DEPTH TESTS

## SUPER-FAST WIDE PRIMES

Eight wide-angle lenses –  
but which is the sharpest?



MASTER YOUR SLR

## CANON SCHOOL

Our expert Andrew James explains  
the complete exposure process



“I’m 63, but I know I’ll be active  
for another 20 years. I believe my  
best work is yet to come...”

Art Wolfe – travel & nature photographer

Future



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## ART WOLFE

This month in our brand-new series of pro interviews we talk to world-famous travel photographer Art Wolfe. See more of his great images **on page 76**



**Peter Travers**  
Editor

# Welcome...

**I**t gives me great pleasure to welcome you to our special 100th issue. Not only are we celebrating our 100th edition, we're also very excited to introduce the all-new *PhotoPlus: The Canon Magazine*. We're now bigger and better than ever, and each month we'll bring you 148 pages packed with more Canon DSLR techniques, tests and tips than any other mag. Even our page size has increased, giving us more room to show off brilliant Canon photography in its best light. We've also changed the name slightly to highlight that we're the only Canon-centric photography magazine on the newsstands.

The team and I have been working day and night and we can now proudly reveal lots of amazing new regular articles. You'll find new Canon pro interviews, more in-depth tests, a comprehensive Canon DSLR and lens buyers' guide, Canon School technical advice, Photo Stories, and a huge £6,750 photo gear giveaway! See pages 6 and 7 for more details.

As if that's not enough, we're giving you ten video guides, with more Canon DSLR technique lessons, plus Photoshop, Lightroom and Canon DPP software editing guides. Plus this issue we kick off a series of free Portrait Posing Guides! Make sure you collect every one, and save even more on the cover price, by taking advantage of our special 100th issue subscriptions offer – see page 28 for details.

Many thanks for picking up this issue; we hope you love the new-look *PhotoPlus: The Canon Magazine*, but do let us know what you think. We've got some amazing content lined up for next month too, so make sure you don't miss it – on sale Tuesday 26 May.

*Peter*



## OUR GUARANTEE

- We're the only photo magazine in the newsagent that's **100% DEDICATED TO CANON EOS DSLR OWNERS** so we're 100% relevant to your needs.
- **WE'RE 100% INDEPENDENT** which means we're free to publish what we feel is best for **EVERY CANON DSLR PHOTOGRAPHER** from beginners to enthusiasts to professionals.
- We're **CANON ENTHUSIASTS** and, with our contributors, we can offer years of **EXPERT PHOTOGRAPHY EXPERIENCE**. We're always excited to pass on what we've learned.
- We're more than just a print mag; **YOU CAN BUY PHOTOPLUS FOR ANY DIGITAL DEVICE WORLDWIDE** via Apple iTunes, Google Play, Zinio, Magzter, Amazon Kindle, B&N Nook, PocketMags or PressReader.
- Our Video Disc has **THE VERY BEST DSLR TECHNIQUE & PHOTOSHOP VIDEO GUIDES** which can also be viewed via our digital editions.
- We're proud to use **THE WORLD'S TOP CANON PHOTOGRAPHERS** and experts. Meet them on page 8.

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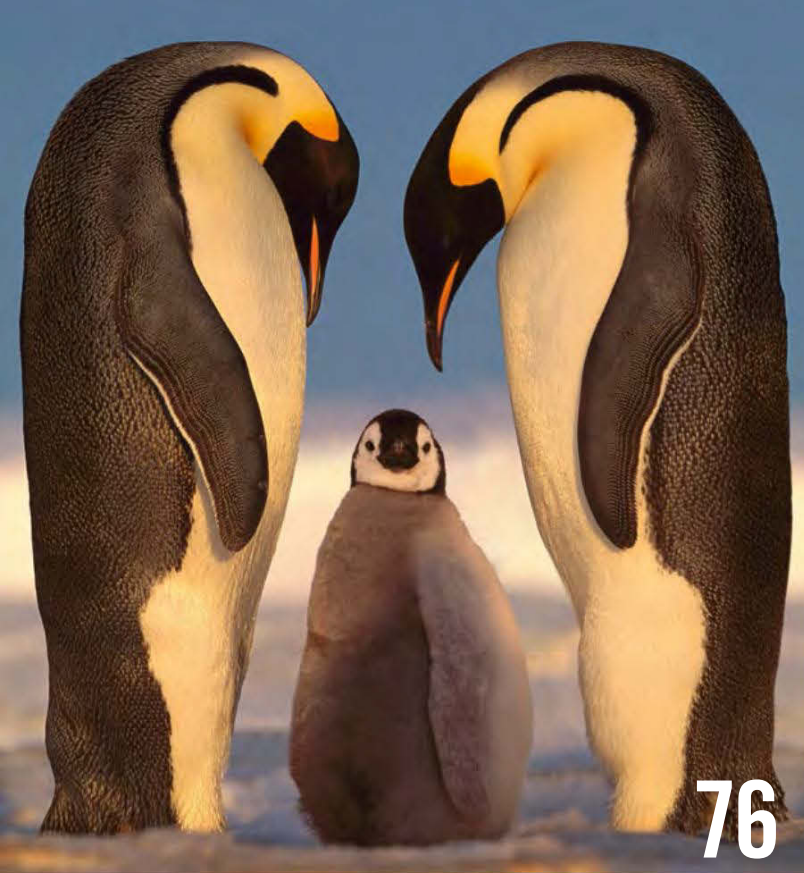
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# Meet the team...

# PhotoPlus

## THE CANON MAGAZINE

Who we are and what we've been up to for our new-look 100th issue...



### Peter Travers

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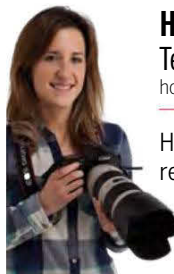
Peter's been working 24-7 to bring you this special 100th issue, including the huge 100 Canon DSLR tips guide with the world's best Canon pros. **PAGE 30**



### Adam Waring

Operations editor • 7D  
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Adam dons his sombrero and goes behind the scenes to shoot and write our Apprentice feature on travel and modern architecture in sunny Spain. **PAGE 10**



### Hollie Latham

Technique editor • 60D  
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Hollie has been hard at work revamping our Skills section and Video Disc, creating and collating a host of great new photo projects to try. **PAGE 55**



### Martin Parfitt

Art editor • 600D  
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Martin has been busy with the dazzling design of the new-look *PhotoPlus*. His favourite bit? The new Gear section. He really loved drawing all the graphs... **PAGE 113**



### Angela Nicholson

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Angela is the brains behind our tough new lab tests, and gives the *PhotoPlus* verdict on Canon's EF 100-400mm f/4.5-5.6L IS Mk II USM telephoto zoom. **PAGE 118**



### Chris George

Group editor-in-chief • 650D  
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Ex-*PhotoPlus* editor Chris was instrumental in creating all the new content displayed in issue 100. Pit your wits against his in the Canondrum quiz. **PAGE 146**

## This issue's contributors...



### Paul Forgham

Paul shows our Apprentice how to shoot the futuristic skylines in Valencia's City of Arts and Sciences. **PAGE 10**



### David Noton

David kicks off his new mega-wide 11-24mm, on a trip to Vietnam. **PAGE 52**



### Art Wolfe

We start our regular series of Canon pro interviews with the venerable US travel photographer. **PAGE 76**



### Alex Hyde

Creepy-crawly photographer Alex reveals the six bits of camera kit he simply can't live without... **PAGE 92**



### Andrew James

Pay attention, you at the back! In Canon School, Andrew explains the technicalities of making exposures. **PAGE 96**



### Brian Worley

Our technical wizard Brian gets to the bottom of your Canon conundrums in our EOS SOS section. **PAGE 107**



### Matthew Richards

Matthew puts wide-angle prime lenses through their paces in our more in-depth Super Test. **PAGE 120**



### James Paterson

James tells you about HDR in-camera, plus pens our Photoshop and Lightroom tutorials. **PAGE 55**

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Print 20,240  
Digital 4,289

The ABC combined print, digital and digital publication circulation for Jan-Dec 2014 is

**24,529**

A member of the Audited Bureau of Circulations

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**Overseas distribution by:** Seymour International

#### Subscriptions & back issues

**UK reader order line & enquiries** 0844 848 2852  
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Future plc is a public company quoted on the London Stock Exchange (symbol: FUTR).  
**www.futureplc.com**

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Printed in the UK by William Gibbons and Sons Ltd, on behalf of Future. Distributed by Seymour Distribution Ltd, 2 East Poultry Avenue, London EC1A 9PT. Tel 0207 429 4000. Overseas distribution by Seymour International.

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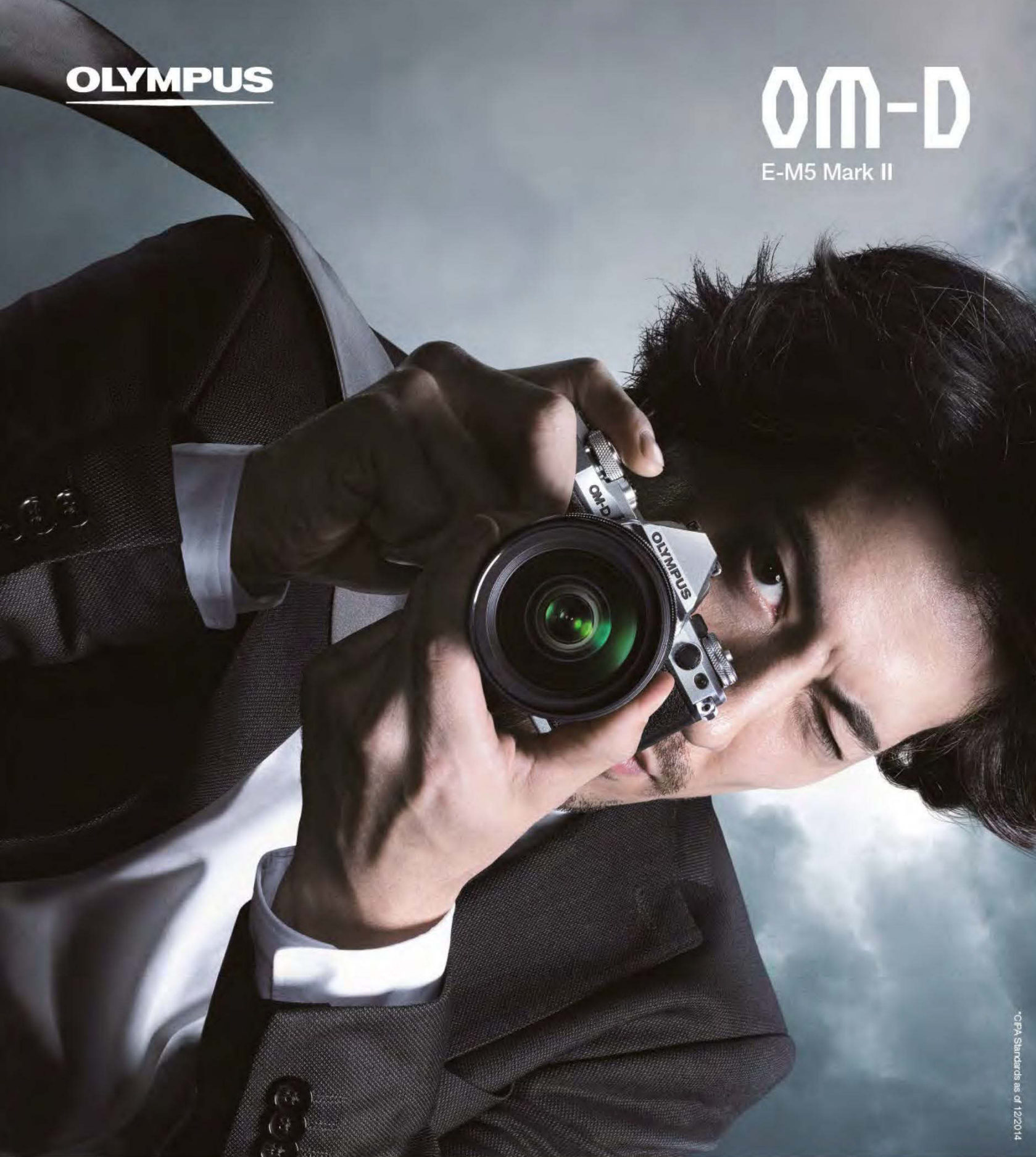
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# GRAND DESIGNS

Our Apprentice learns the art of architectural travel photography in Valencia's City of Arts and Sciences





## APPRENTICE

### NAME:

KYLE LYONS

### CAMERA:

CANON EOS 5D MK III

**KYLE**, 38, is a multimedia artist, specializing in stock video footage for the entertainment industry. Originally from Buffalo, New York State, USA, he has lived in Valencia, Spain, since 2003 after studying Spanish in the city. He invested in his Canon camera primarily to shoot time-lapse video for his work, but now wants to put his DSLR to the purpose it was originally intended.

## CANON PRO

### NAME:

PAUL FORGHAM

### CAMERA:

CANON EOS 5D MK III

**PAUL** is a 56-year-old landscape and travel photographer, with a specialization in architectural photography. Based in Somerset, he travels regularly to shoot great European cities, and so was just the man to show Kyle the ropes of city break photography in Valencia's architectural masterpiece, the City of Arts and Sciences. See Paul's work at [www.paulforgham.co.uk](http://www.paulforgham.co.uk).

## FACTFILE

The City of Arts and Sciences

### WHAT IS IT?

**DESIGNED** by world-renowned Valencia-born architect Santiago Calatrava, the City of Arts and Sciences comprises a series of futuristic buildings, including a science museum, opera house, aquarium, IMAX cinema and sports arena, among other attractions. Constructed on a dried-up riverbed, it's crossed by spectacular bridges, including the landmark Assut de l'Or, seemingly impossibly suspended by 20 steel cables anchored to a single strut.

### WHERE IS IT?

**VALENCIA** is Spain's third-largest city, on its eastern coastline, and has much to offer the travelling architectural photographer. It's home to beautifully maintained art deco buildings and medieval city walls. The city is well served by the budget airlines from regional UK airports.

### WHEN'S BEST TO GO?

**AVOID SUMMER** months as the heat's unbearable. Spring and autumn are best as you'll encounter fewer crowds and nicer temperatures – dawn and dusk are at more civilised times, too!



## TECHNIQUE ASSESSMENT

Paul asked Kyle to set up his camera for architecture and gave him a few pointers

### USE AUTOFOCUS

**KYLE USES** manual focus for his video work as he doesn't want the lens to refocus each time he shoots a frame, but Paul suggested he switch to autofocus. "The 5D Mk III has a fantastic AF system that snaps into focus with pinpoint accuracy – better than I can manage!"



### AV NOT MANUAL

**KYLE HAD** set his camera to Manual mode, but Paul recommends using Av, then dialling in exposure compensation as necessary. Kyle had set a wide aperture of f/2.8 to let in as much light as possible to shorten exposure times, but Paul explained that the resultant shallow depth of field meant that only a small section of the scene would be sharp; a narrower aperture, such as f/11, gives far greater depth of field, so that everything in the frame is crisp, from front to back. And because the camera is almost *always* mounted on a tripod, there's no need to worry about the longer exposure time.



## TOP GEAR #1

Nondescript camera bag

**PAUL'S CANVAS** National Geographic camera bag belies the fact that he's carrying around thousands of pounds worth of photo gear. Well padded and comfortable, it has with plenty of pockets for carrying other bits and pieces of camera kit, plus it has an all-important water-carrying compartment.

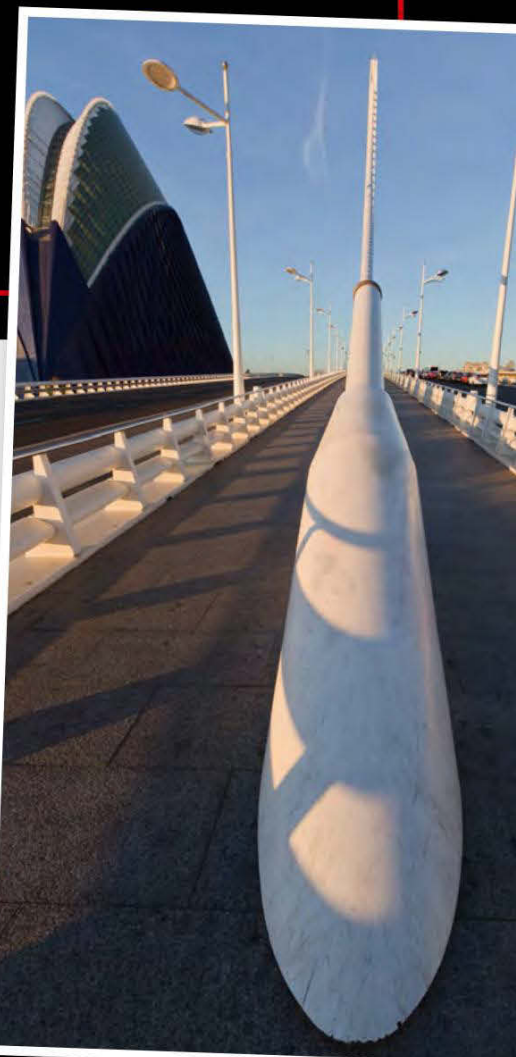


## PRO TIP

## FORGET THE ND GRADS!

**BUILDINGS** tend to stick up into the sky, meaning ND grads can cause more problems than they solve by darkening the tops of structures. Paul recommends taking additional exposures for the bright sky and/or darker shadows to blend in Photoshop instead, but prefers to do this manually rather than using the Auto Exposure Bracketting feature:

"The problem with auto bracketing is you have to remember to switch it off again, or your next shot will be bracketed too. It takes a second to apply exposure compensation by hand, and I find it quicker than delving into the menu to select AEB all the time."



## EXPERT INSIGHT

## COMPOSE YOURSELF

**As dawn was breaking, Paul asked Kyle to set up a shot of the gravity-defying Assut de l'Or bridge, then offered advice on how he could improve his composition...**

"Kyle's initial composition has the 'foot' of the foremost suspension cable slap-bang in the centre of the frame, and while it offers an interesting abstract take on the subject, I don't think it conveys the full majesty of the architecture as you can't see how the entire bridge is suspended elegantly from a single strut. The buildings at the left and right are cut unceremoniously in half as well. I suggested he shoot from the side instead to reveal the cables, and to show the structures to the left in all their glory..."





## KYLE'S COMMENT



**MY INITIAL** front-on composition was instantly improved by Paul's suggestions. Dawn was just breaking, giving a lovely

sidelight to the bridge, and I like the way the cables draw the eye to the suspension tower, which itself is highlighted by the early-morning light. It's actually a busy road bridge, and rush hour was just beginning, so I waited for a gap in the traffic before hitting the shutter – and to avoid vibrations from the heavy lorries thundering by.



# HOT SHOT #1

Lens	Canon EF 16-35mm f/2.8L II USM
Exposure	1/80 sec, f/10, ISO100



## EXPERT INSIGHT

### BLENDING EXPOSURES

**Paul explains how he blends images in Photoshop, rather than using ND grad filters:**

"This shot of the science museum was exposed nicely for the foreground reflections but the upper half of the image was slightly overexposed. However, rather than using a separate exposure for the sky, I decided it was close enough to process the same Raw file twice, setting different exposure values for the sky and land, then blending them together in Photoshop. Processing a single file twice has the added benefit that nothing in the frame can move between shots."

**I FIRST** put the image through the Adobe Camera Raw converter, and tweaked the exposure slider to +0.20 to get the foreground just right, applied the appropriate lens correction, and adjusted the temperature a tad to give a little warmth. I then opened the image in the main Photoshop editor.



**I WENT** back to the original Raw file and reopened it in the ACR converter again, this time adjusting the exposure slider to -0.70 to get the upper half of the image looking right. I left all the other settings the same as in the previous conversion, then opened this in the main Photoshop editor, too.



**I PUT** both images together as separate layers, named 'Sky' and 'Foreground'. With the 'Foreground' image at the top of the stack I applied a layer mask, then made a careful selection (along the waterline) of the upper half of the image using the Lasso tool, feathering the selection with a radius of 5 pixels.



**WITH** the layer mask highlighted, I next selected a large, soft-edged brush, set black as the foreground colour in the Tools palette and brushed through to the layer below, revealing the nicely exposed upper half of the image. To finish things off, I cloned out distractions and applied a little sharpening.



## HOT SHOT #2

### KYLE'S COMMENT

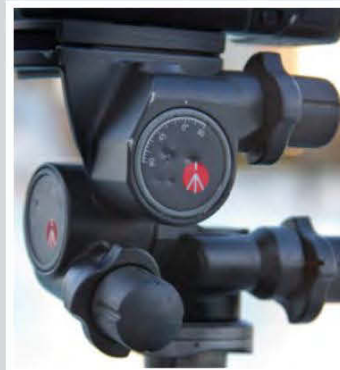


**AS THE** morning advanced the wind picked up, creating ripples on the surface of the shallow pools that surround the buildings. Paul explained that this would spoil the impact of the shot – so we waited for the wind to drop. When it did, the lull only lasted for a few seconds, but by timing it right the science museum is reflected perfectly in the water – just as Calatrava intended!

## TOP GEAR #2

### Geared tripod head

**PAUL'S MANFROTTO** Junior three-way geared head allows each plane of movement to be adjusted with utmost precision (though quick-release mechanism allows for freer movement) for getting compositions spot-on, and is absolutely rock-solid.



## PRO TIP

### CHEAP ELECTRONICS, POSH GLASS!

**PHOTOGRAPHY** is an expensive hobby, but Paul advises saving money where you can. "Electronic items from the far east, such as intervalometers, cost a fraction of their branded equivalents and can be just as reliable, but the same can't be said for optics such as filters – which can seriously degrade image quality. My mantra is to stick to reputable brands for any kit that goes in front of your lens."



## TOP TEN TRAVEL PHOTOGRAPHY TIPS

- 1 Do your research**  
Work out where all the major landmarks are before you go so you can make a sensible plan of what to photograph, and when.
- 2 Carry your kit on**  
Take your camera and lenses in your hand luggage – baggage handlers won't treat your kit with the same care that you do...
- 3 Stay local**  
Choose a hotel close to where you'll be photographing – to minimise the distance you'll be lugging your kit around.
- 4 Check sunrise/sunset times**  
The best times to shoot city scenes are dawn and dusk, and latitude and longitude play a big part, even in the same time zone.
- 5 Set your alarm clock**  
No one likes getting up while it's still dark – which is why it's an ideal time to photograph city streets, empty of people!
- 6 Take a siesta**  
Have a rest while the sun is high in the sky to recharge your batteries (both figuratively and literally!) for the evening shoot.
- 7 Lose the crowds**  
A 10-stop ND filter doesn't only smooth water, but can literally make crowds disappear in an exposure that's minutes long.
- 8 Revisit locations**  
Come back to locations to see if the light later in the day gives it a completely fresh look – street lights that are turned on at dusk may not be there at dawn.
- 9 Travel light**  
Stay mobile by just bringing one DSLR body and a standard zoom and wide-angle zoom lens.
- 10 Stay safe**  
When in a city you don't know well, stick to the main areas and away from the back streets, and *never* leave your kit unattended.



Lens	Canon EF 16-35mm f/2.8L II USM
Exposure	1/60 sec, f/10, ISO100



### TOP GEAR #3

Canon EF 16-35mm f/4L IS USM

**PAUL SOLD** his EF 16-35mm f/2.8L USM lens to buy the new f/4 IS version. "An f/2.8 aperture offers little advantage for shooting landscapes and cityscapes, whereas IS is much more useful for those occasions when there's no option but to handhold the camera – shooting at awkward angles or in places where tripods are banned, for example. The f/4 is way cheaper, too!"



## EXPERT INSIGHT

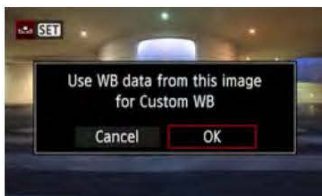
### SET WHITE BALANCE FOR NIGHT PHOTOGRAPHY

**Auto White Balance makes a fair fist of things in daylight, but when photographing cities at night, with buildings lit up by all manner of light sources, it can get horribly confused.**

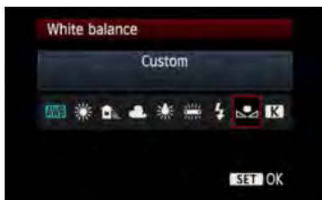
Paul takes a quick shot and sets his white balance from that, the shot acting as a virtual grey card...



**STEP 1** Set up your composition and shoot the scene. We're going to use it as a virtual 'grey card' to improve the white balance.



**STEP 2** Select Custom White Balance from the red shooting menu, select the image you've just shot, then hit Set.



**STEP 3** Select White Balance, scroll to the Custom White Balance option, and retake the photo – the white balance will be much better.



## PRO TIP

### USE THE BUILT-IN LEVEL

**THERE'S** nothing worse than a wonky building when it comes to architecture, so use the built-in electronic level on your DSLR to ensure everything's perfectly flat. Press the Info button a couple of times until it appears – this works both in Live View or when shooting through the viewfinder.

## TOP GEAR #4

### UK extension lead

**CAMERA,** flashgun, phone and laptop batteries all need to be recharged daily, but rather than bringing half-a-dozen UK-European adaptor plugs, Paul packs a UK four-way extension socket with a single Euro plug attached.



## PAUL'S FAVOURITE CITY-TAKES!

Paul travels extensively to shoot architecture. Here are three of his favourite images from his travels...



### BACINO ORSEOLO – VENICE

**YOU** can't come back from Venice without a gondola shot – it's the law! I took this at 5:30am at the gondola station next to St. Mark's Square. I used a wide-angle lens to capture as much of the scene as possible; the beautifully still reflections and rich colours in the early light make for a pleasing image.



### MAKIN' WAVES – BERLIN

**THE** Shell-Haus building is a 1930s classical modernist masterwork. I dialled in a fast shutter speed and handheld the camera, to get in tight and low for a dramatic angle with maximum impact. I used the repeating lines and converging verticals to emphasize the weirdly wonderful waviness!



### OLD BIGHEAD – LONDON

**THE** Millennium Bridge offers some great photo opportunities. I waited until late for the crowds to thin out and then used a 60-second exposure to make the 'stragglers' disappear. The handrail and colourful lighting along the bridge provide bold leads through to the majestic-looking St. Paul's Cathedral.



SHOOT WITH A PRO

## KYLE'S COMMENT



**SOMETIMES** it pays to 'break the rules' and try something a little different. I don't think many photographers would ordinarily compose a shot with a pillar slap-bang in the middle of their frame, and while I could have omitted it by shooting from in front of the pillar, Calatrava's supports are works of art in themselves!

## HOT SHOT #3

Lens	Canon EF 16-35mm f/2.8L II USM
Exposure	8 secs, f/9, ISO100

## HOT SHOT #4

## KYLE'S COMMENT



**I MUST** admit that I wouldn't ordinarily have given this lift a second glance – but Paul's photographer's eye sees beauty in the mundane! It was actually one of the first locations we visited in the morning, but the lights were off. We revisited in the evening, using a narrow f/22 aperture to turn the downlighters into starry highlights.

Lens	Canon EF 16-35mm f/2.8L II USM
Exposure	20 secs, f/22, ISO100





## KYLE'S COMMENT



**THIS WAS** actually one of the first compositions we tried in the morning, taken just before the sun had risen – you can see it just about peeping into shot under the bridge. Using the 16-35mm wide-angle, I composed the scene with the science museum and Assut de l'Or bridge at either side and used a longish 3.2 sec exposure – it was actually a fair bit darker than it looks in the shot!

Lens	Canon EF 16-35mm f/2.8L II USM
Exposure	3.2 secs, f/9, ISO100

## PAUL'S VERDICT



**KYLE HAS** composed his shot perfectly! The horizon has been placed bang-on the centre, and while this is ordinarily considered a no-no, it works because the scene is reflected in the pool of water. The building and bridge at the edge of the frame split the scenes roughly into thirds, while the bridge cables provide lovely lead-in lines. His aperture isn't that narrow, but because of his wide 21mm focal length he's been able to focus at infinity and keep everything sharp. The lights on the bridge give a lovely starburst effect, too!



NEXT MONTH **FASHION PORTRAITURE**

# SHOT OF THE DAY!

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# INSPIRATIONS

STUNNING IMAGERY FROM THE WORLD OF CANON PHOTOGRAPHY







**01 TULIPA SILVESTRIS**  
**BY LEONARDO BATTISTA**

Here is an example of being in the right place at the right time: I was driving home when I noticed a field with numerous yellow tulips. The sun was about to disappear behind the hills so I decided to capture a backlit, wide view of the scene using a diagonal fisheye lens. I used a couple of flashguns to throw light into shadowed areas in the foreground.

**Lens** Sigma 15mm f/2.8 EX DG Diagonal Fisheye

**Exposure** 1/60 sec, f/16, ISO200



# INSPIRATIONS



02



These Canon images are all finalists in the International Garden Photographer of the Year 2014 competition. Go to [www.igpoty.com](http://www.igpoty.com) for more information about the International Garden Photographer of the Year 2015 competition.

- 02 HEAVEN'S GATE BY DAVE FIELDHOUSE**  
I am not a religious man, however, when I arrived at this gate, the sun appeared at just the right point along the horizon and I couldn't help but think to myself how heavenly the view looked.

Lens	Canon EF 16-35mm f/2.8L II USM
Exposure	1/5 sec, f/16, ISO100

- 03 AT THE END OF THE DAY BY STEPHEN MOORE**  
One day towards the end of summer the sunlight was just starting to fade when the sun's rays caught my garden shed, producing a gentle warm glow behind the flowers. This soft glow complemented the flowers in the foreground and I was delighted with the resulting picture.

Lens	Canon EF 70-200mm f/2.8L IS II USM
Exposure	1/400 sec, f/3.5, ISO200

- 04 LIFE IS A ROLLERCOASTER BY MINGHUI YUAN**  
There are peaks and troughs in life, good or bad – it's only temporary. I observed the ladybird crawling along the lines of the vines back and forth, and finally it stopped to rest. It makes me think of the nature of philosophy: life is like a roller coaster.

Lens	Tamron SP AF 90mm f/2.8 Di Macro
Exposure	1/80 sec, f/8, ISO640



03







# INSPIRATIONS







06



07

**05 MISTY FOREST BY VINCENZO MAZZA**  
Taken in the beech forest on the Monti della Laga mountain group in Abruzzo. These particular beeches were bent, during their life, by the weight of the winter snow. I visited this place several times before I was able to find the right misty atmosphere that I was looking for.

**Lens** Canon EF 70-200mm f/2.8L IS USM

**Exposure** 3.2 secs, f/16, ISO100

**06 SNOWDROPS IN A BEECH FOREST BY MAREK MIERZEJEWSKI**  
Beech forest leaves in the sun provide a colourful warm background for white snowdrops; moisture in the air makes them seem even more vivid and attractive.

**Lens** Canon EF 100mm f/2.8L Macro IS USM

**Exposure** 1/500 sec, f/5.6, ISO125

**07 FIG ON WOODEN BOWL BY JAMES GUILLIAM**  
The fig was placed in a painted and distressed wooden bowl and placed on some old scaffolding boards. It was shot inside with cool light from a north-facing window. This was from a project with fruit to make images with a Nordic feel.

**Lens** Sigma 150mm f/2.8 EX DG OS HSM Macro

**Exposure** 1/100 sec, f/4, ISO100



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# INSPIRATIONS



These Canon images are all finalists in the International Garden Photographer of the Year 2014 competition. Go to [www.igpoty.com](http://www.igpoty.com) for more information about the International Garden Photographer of the Year 2015 competition.

- 08 POPPY FIELD SUNSET BY DREW BUCKLEY**  
The corner of a maize field near Tenby had been ploughed and this array of poppies appeared the following month for a few weeks. I checked the weather forecast so I knew it wouldn't be windy enough to blur the flowers. I timed my visit to coincide with the sunset and used a neutral density graduated filter to keep the exposure of the sky in check, allowing the foreground to be exposed correctly.

**Lens** Canon EF 17-40mm f/4L USM

**Exposure** 1/15 sec, f/13, ISO1000

- 09 MOSS BY SERGEY KAREPANOV**  
After the snow has gone, this is the first stage of growth of new moss in June.

**Lens** Canon EF 100mm f/2.8 Macro USM

**Exposure** 1/125 sec, f/2.8, ISO200





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# THE 100

PRICELESS  
ADVICE FROM  
THE WORLD'S  
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PROS

## BEST-EVER

# Canon

LENS EF-S 18-135



**T**o celebrate the 100th issue of *PhotoPlus: The Canon Magazine* in style we've provided 100 must-have tips and techniques to help you really take control of your Canon DSLR and push your photography further.

We've also enlisted 24 of the world's best Canon professional photographers to share their best techniques for capturing stunning shots. From landscapes to portraits, wildlife to gardens, macro to sports, every photographic subject is illustrated with inspirational Canon images.

Inside this guide you'll find all you need to know to become a better Canon photographer. We begin with basic setup to help you get to grips

with your DSLR, before progressing to Canon's shooting modes. We then move on to depth of field and focusing, explaining clearly how, using apertures, focusing and focal length, you can control depth of field, before offering up some smart advice for selecting shutter speed.

We also help you step up to Manual mode, show you how to make the most of lenses, and then, without drawing breath, we brighten up your life with essential flash photography skills. Finally, we round things up with a selection of cool ways that you can customise your camera.

So, what are you waiting for? Turn the page to discover the 100 best-ever Canon DSLR tips, tricks and techniques...

*Read this feature and  
get better at using your  
Canon DSLR today!*

# TECHNIQUES



## First steps

Tips and techniques to help get you and your Canon camera ready for anything

01

Combine a standard ND filter with a graduated one when shooting at the coast



### 04 Formatting your memory card

**GET INTO** the habit of formatting the memory card before every use. This will delete all the images and data, including protected images, so make sure you transfer everything to your computer before doing so. You should always format the card in the camera you'll use it in; you'll find this option in the yellow Set-up menu, but it can also be included as a My Menu option (see the opposite page) on EOS cameras that offer this feature. By formatting your card rather than deleting all the images on it, the overall performance will be improved – use the 'Low level format' option occasionally to completely wipe the card of all 'hidden' files.



### 05 Selecting AF points

**YOUR CAMERA'S** focusing system is made up of a grid of AF points towards the centre of the viewfinder. A typical mid-range DSLR has 9 AF points, while some of the pro models have up to 61 AF points. By default the AF system will be set to Automatic Selection and all points will be active. To check, press the 'grid' button and all the focus points should light up. The camera will lock onto whatever is closest to you, and this may not be the subject. So take control and manually select an AF point by scrolling through them with Main dial. Some DSLRs let you select groups of AF points, which can be useful for tracking moving subjects.



### 06 Setting Raw image quality

**A CANON** camera can record photos in two Image Quality formats: JPEG and Raw. JPEGs are processed by the camera and are much smaller files because they're compressed before being saved on the memory card. Raw files are much larger in size, so you can't squeeze as many onto a card. They also take longer to be saved, so you can't shoot as many in quick succession. If you're shooting fast-moving action it may be better to use JPEGs. However, Raw files offer superior quality as they retain more detail, but they do need to be processed in Raw software, such as Canon's Digital Photo Professional.



## PRO TIPS

**Shoot long exposures** Mark Bauer

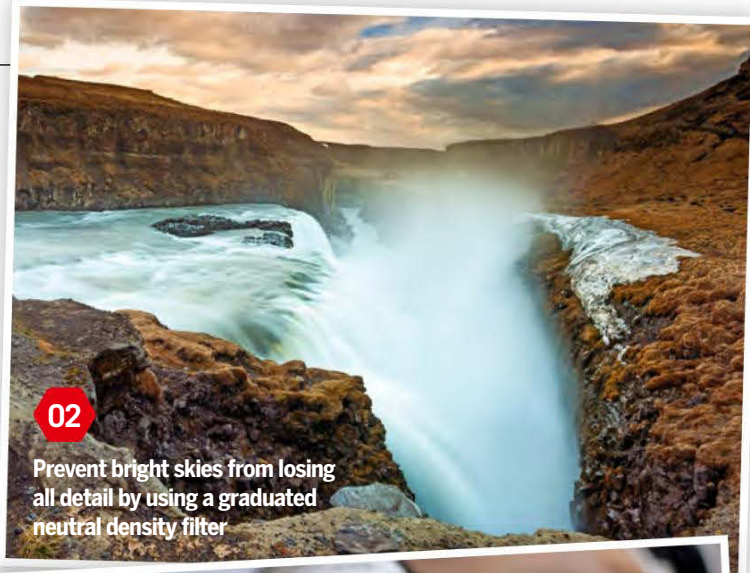
**“I SHOT** in Aperture Priority [01] and set a narrow aperture for a large depth of field [see p36]. A four-stop Neutral Density (ND) filter was used to extend the shutter speed and capture a sense of movement in the waves. I also used a soft-edged graduated filter, angled across the frame so as not to cut into the cliffs. This prevented the bright sky from blowing out.”

**Retain sky detail with an ND grad** Chris Rutter

**“ONCE YOU’VE** got your setup and skills right, you’ll be able to capture shots like this one [02] taken at Gullfoss in southwest Iceland. This viewpoint was the only spot close to the falls which wasn’t being constantly covered in spray. So I set my camera up on my tripod, zoomed my 16-35mm lens to around 19mm and used a two-stop ND grad to keep detail in the sky and the waterfall.”

**Make the most of natural light** Andrea Denniss

**“THE SET-UP** for this portrait [03] was kept very simple, with a window just in front of the bed giving me all the light I needed. I love working at large apertures as it allows me to focus attention on one specific area. In this case, it was the model’s eyelashes. My Canon EF 85mm f/1.2 is my favourite lens and I opted for an aperture of f/2.5 here, giving me a wonderfully shallow depth of field.”



**02**  
Prevent bright skies from losing all detail by using a graduated neutral density filter



**03**  
Use high ISOs to make the most of natural light indoors

07

**LCD brightness**

You can adjust the LCD brightness in your camera’s Set-up menu. But do note that the brighter the display, the quicker the battery will be depleted.

08

**AF confirmation**

When you half press the shutter button to focus, the focus confirmation light will blink in the viewfinder. Once focus is achieved this light will remain on.

09

**Sharper image**

If the image in the viewfinder looks blurred, but the AF confirmation light is on, try adjusting the eyepiece diopter behind the rubber eyecup.

10

**My Menu**

Scrolling through the camera’s menus can be a chore: add your most frequently used functions to the green My Menu option to quickly access them at any time.

**11 Extending battery life**

**YOUR EOS** DSLR comes with a lithium-ion battery, which needs charging before you first use it. Treat the number of possible shots per charge listed in the camera manual with a pinch of salt. There are many variables that exhaust batteries faster. Live View is a big drain, but so too are excessive image playback, continuous autofocus and image stabilization. Consider cutting back on these when you’re low on juice.

**12 Switching lenses**

**THE MOST** important thing, when changing lenses, is to protect the sensor from dust and dirt, so avoid doing it in windy conditions. Switch off the camera and, before you remove the lens, make sure its replacement is to hand. Angle the camera down, so that debris can’t fall into it, and change lenses swiftly. If automatic sensor cleaning doesn’t kick in when you turn on the camera, activate it in the menu.

**13 A year of Canon tips**

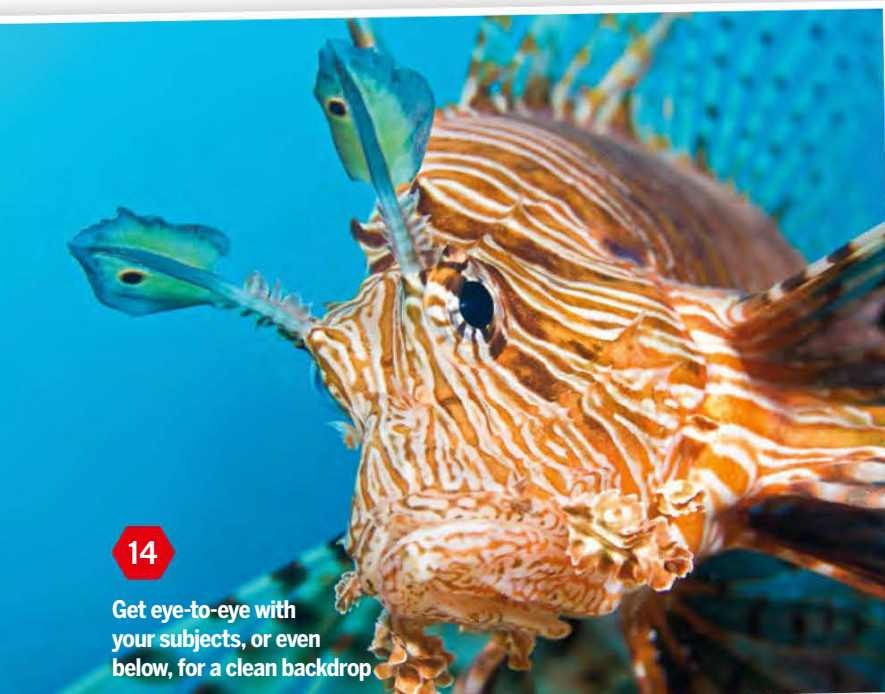
**SUBSCRIBE TO** the new-look PhotoPlus and you’ll get a year of unmissable expert Canon advice straight to your door! If you’re taking your first steps in photography with an EOS DSLR then it’s likely to be the best investment you’ll make, even if we do say so ourselves – see p28 for our special 100th issue subs offer!





## DSLR modes

Get more from your EOS camera's automatic shooting modes and take great shots hassle-free



14

Get eye-to-eye with your subjects, or even below, for a clean backdrop

### PRO TIPS



#### Underwater photography Rob White

**"MANY UNDERWATER** creatures tend to have some form of camouflage, making them difficult to distinguish from the seabed [14]. I use an underwater housing for my DSLR, get down to eye-level or below, and aim up towards the surface to increase the distance between the subject and its surroundings. The seawater then acts as a nice, plain green or blue background."



#### Long-lens landscapes David Noton

**"I RETURNED** to Cordes-sur-Ciel in the Pyrénées four dawns in a row, determined to make the most of this misty French hilltop town [15]. Using a 70-200mm lens helps to give a long lens perspective that excludes clutter from the frame, striping the composition down to its simplest elements."



#### Stunning sports James Cheadle

**"THIS ACTION** shot of World No.1 golfer Rory McIlroy [16] was shot in Northern Ireland. I was looking for a wild location to complement the amazing links courses, but with a clutter-free frame to distinguish the image from the many tournament shots of Rory seen every week. To freeze the moment I shot at 1/500 sec, with an aperture of f/6.3 at ISO250, and used my EF 70-200mm f/2.8L lens to compress the image."



15

Ditch the wide-angle and try long-lens landscapes



17

#### Fully Automatic

**THE FULL** Auto (green box) or Scene Intelligent Auto (A+) modes, depending on your DSLR, work in the same way – by analysing the scene and automatically selecting the best settings to capture it. In A+ it will also set an 'Auto' Picture Style, which adjusts colours too. You simply aim at your scene or subject, press the shutter button halfway for an AF point to achieve focus, then fully press the button to take the shot. Your camera will set everything from exposure brightness to ISO to metering, and will also change the AF mode from One-Shot AF to AI Servo AF if your subject moves or is moving. The flash might pop up if lighting conditions are low.





**16**

Use a short telephoto zoom to compress a scene and make a subject 'pop'

## **18** No flash photography!

**THE FLASH** Off mode ensures the built-in flash doesn't pop. This can be helpful if you're shooting indoors in places that have a ban on flash photography (such as art galleries, museums and churches). It sets a high ISO setting (and suitable shutter speed) in order to prevent camera shake.

**19**

## Handheld Night Scene

This mode helps you capture city scenes at night without a tripod. It does this by pumping up the ISO and combining four shots to create a 'stable image'.

**20**

## HDR Backlight Control

This easy HDR mode is useful for high-contrast scenes. It takes three shots at three exposures and combines them to improve shadow and highlight detail.

**21**

## Night Portrait

Shooting portraits at night? Use this handy mode. Your camera may activate the pop-up flash, or suggest you use a tripod if it determines the exposure will be slow.

**22**

## Close-up

This mode optimizes the camera settings for photographing small objects, although it won't enable your lens to focus closer than its minimum focusing distance.

**23**

## Program shift

Program AE (P) is a step up from the Basic Zone modes. It sets the aperture and shutter speed, but you can 'shift' the combination selected by turning the Main dial.

## **24** Creative Auto mode

**THE CREATIVE** Auto (CA) mode (found on the EOS 500D and later) is perfect for enthusiast photographers looking to break out of the auto modes. In CA mode you can change a few key settings, including flash and 'ambience'. Press the Q button, then on the rear LCD you can use the dial to change the depth of field for more or less background blur.



## **25** Sports is for all action

**NOT JUST** for sporty subjects, Sports mode is great for anything that's moving fast – such as wildlife, motorsports and children! It will use your DSLR's fastest continuous shooting speed (such as five frames per second) and sets a very fast shutter speed (around 1/500 sec) to freeze any action in shot. To do this, your camera will often need to set a high ISO, especially in low light, and this could be as high as ISO3200.



## **26** Landscape mode

**THIS AUTO** mode will help if you aren't confident setting the aperture manually. It's best used with a wide-angle lens to further increase the front-to-back sharpness. To maximize depth of field, your camera will set a narrow as possible aperture, although this could be as wide as f/5.6 in low light. It will capture vivid blues and greens and sharp images suited to landscape shots, but will only record a JPEG image.



## Depth of field and focusing

Make sure your photos are sharp in all the right places by adjusting aperture, focusing and focal length

### PRO TIPS



#### Blur your backgrounds Ben Hall

**"I PHOTOGRAPHED** this brown bear [27] from a hide deep in the forests of the High Tatra mountains in Slovakia. Using my Canon EF 100-400mm lens (at 340mm) coupled with a wide aperture of f/5.6, I was able to capture a shallow depth of field and completely diffuse the foreground and background foliage."



#### Pre-focusing trick Drew Gibson

**"1/40 SEC** was a slow enough exposure to really convey the GT3 Aston Martin's sense of speed [28]. I always use the back button focus system, which isolates the focusing from the shutter button. In this case, I pre-focused on the 'jump' part of the circuit and then left the focus alone as I panned smoothly with the car, pressing the shutter as it passed my pre-determined spot."



#### Maximize depth of field Robert Birkby

**"I WANTED** to achieve front-to-back sharpness from the heather to the horizon [29]. A wide 16mm focal length and f/16 aperture helped, but focusing at the hyperfocal distance was key. Every landscape photographer should be familiar with the principle of hyperfocal distance. Check out <http://www.dofmaster.com/dofjs.html> to calculate hyperfocal distance for any given camera, lens and focusing distance."



27

Use telephoto lenses and wide apertures to melt away backgrounds



28

If you want to capture images like this, try the pre-focusing technique

### 30 Aperture Priority

**THE THREE** main factors that control depth of field (DoF) are your choice of aperture, focal length and focusing distance. The best way to set the aperture is to use the semi-auto Av (Aperture value) mode: you dial in the aperture (for your chosen lens), and your camera sets the appropriate shutter speed to produce a standard exposure. Set a wide aperture of f/4 for shallow DoF, and narrow aperture of around f/16 for maximum DoF.



### 31 Focal length

**AS FOCAL** length increases (lengthens), the depth of field decreases, and vice versa. So a wide-angle lens (anything wider than 35mm, essentially) will naturally capture more depth of field. This means that when they're used at a narrow aperture, they can render whole landscapes sharp, from the foreground to the horizon. In contrast, longer focal lengths capture a progressively shallower depth of field. Telephoto lenses (70mm and above) are better for portraits, as when combined with a wide aperture they really blur backgrounds.



### 32 Focusing distance

**BY FOCUSING** on subjects or objects very close to you, you reduce depth of field, leaving the scene behind your focal point blurred (even when you're using narrow apertures). Whereas, by focusing on distant objects or subjects, you will increase depth of field.





**29**

For maximum front to back sharpness, combine wide lenses and narrow apertures with hyperfocal focusing



### **33** What's the best aperture?

**THE WIDEST** or narrowest aperture available on your lens isn't always the best choice. Here, the widest aperture of f/4 has knocked the background well out of focus, but only a small part of the flower is sharp. The narrowest aperture of f/22 has brought the entire flower into focus, but also rendered the background so it becomes a distraction. While an aperture of f/8 gives the best of both. A mid-range aperture will also capture optimum image quality, too.

### **34** Pin-point focusing

**WHEN CAPTURING** scenic shots, use your DSLR's Live View and LCD to focus with the upmost accuracy. First set a narrow aperture of around f/16, then set the lens to MF and manually focus on what's most important in your scene (the tree in our example), zooming in to x5 and x10 view to check the sharpness.

**35**

### Shake-free shots

Don't fire a tripod-mounted DSLR by pressing the shutter release. Switch to a remote control (or use your camera's self timer) to ensure sharp photos.

**36**

### Hybrid sensor

The hybrid CMOS sensor on the newest EOS DSLRs, such as the 750D and 760D, offers improved AF performance in Live View when using the LCD touchscreen.

**37**

### Central AF point

For moving subjects or backlit subjects (when there's little contrast for the autofocus to latch on to) use the centre AF point, as it's the most sensitive.

**38**

### Less DoF with full-frame

Using the same lens, aperture and focusing distance as an APS-C camera, a full-frame Canon DSLR will naturally capture a shallower DoF.

**39**

### Mirror lockup

Even if you use a tripod and self-timer, the action of the mirror being raised can cause camera shake. Activate the camera's Mirror lockup setting to prevent this.



40

## Be prepared to wait

Long Exposure Noise Reduction doubles the length of time it takes to produce every long exposure image because it creates a 'dark frame' for each shot.

41

## When to use a tripod

If the shutter speed drops below the equivalent focal length of your lens – such as 1/100 sec for a 100mm lens on a full-frame EOS camera – then use a tripod.

42

## ISO Expansion

In dark conditions, expand the sensitivity range of your camera via the Custom Functions menu, although the top values (H1 and H2 etc) do give noisy results.

43

## Flash sync in Av mode

In Aperture Priority the camera sets the shutter speed. If you're using flash it can be helpful to set the sync speed via the Custom menu to prevent long exposures.

44

## Sharp and blurred

Mix a long exposure with flash (in Second-curtain sync mode) when shooting a moving subject to get soft, blurred movement trailing behind a sharp subject.

# Shutter speed and sensitivity

Capture movement in creative new ways by taking charge of shutter speed and ISO

## PRO TIPS



### Make some noise Andy Rouse

**"WHEN YOU** want to freeze fast motion, the only consideration is getting the shutter speed high enough to nail the shot [45]. Therefore I don't care about ISO, I will set whatever I need to get at least 1/1000 sec for images of birds in flight. For me, worrying about noise is pointless..."



### Bring landscapes to life Guy Edwardes

**"BEWARE OF** going too slow with shutter speeds when shooting seascapes [46]. During stormy weather use an exposure time of between 1/4 and 4 seconds to record movement in waves without the water becoming too smooth and milky. Wait for a wave to break upon the shore and release the shutter as the water begins to pour back towards the ocean."



### Travel with Tv mode Julian Love

**"IF YOU'RE** on your feet all day it's nice not to carry a tripod. But you have to be careful not to get camera shake when shooting in low light [47]. Brace your body firmly and try to rest the camera against a wall or pillar. Use the high-speed drive and hold the shutter down for three or four frames – the first one might be slightly blurred but the second or third will be sharp."

45

Be prepared to increase the ISO in good light to achieve ultra-fast shutter speeds

48

## 'Time value' mode

**Tv ON** the Mode dial of Canon cameras stands for Time value mode, but it's more commonly known as Shutter Priority mode. It's a great semi-automatic option that allows you to set the shutter speed while the camera takes care of the aperture. This means it's really useful when you want to control how the



subject's movement is captured: frozen or blurred. It also lets you dial in a 'safe' shutter speed for sharp photos when you're using the camera handheld, rather than on a tripod.

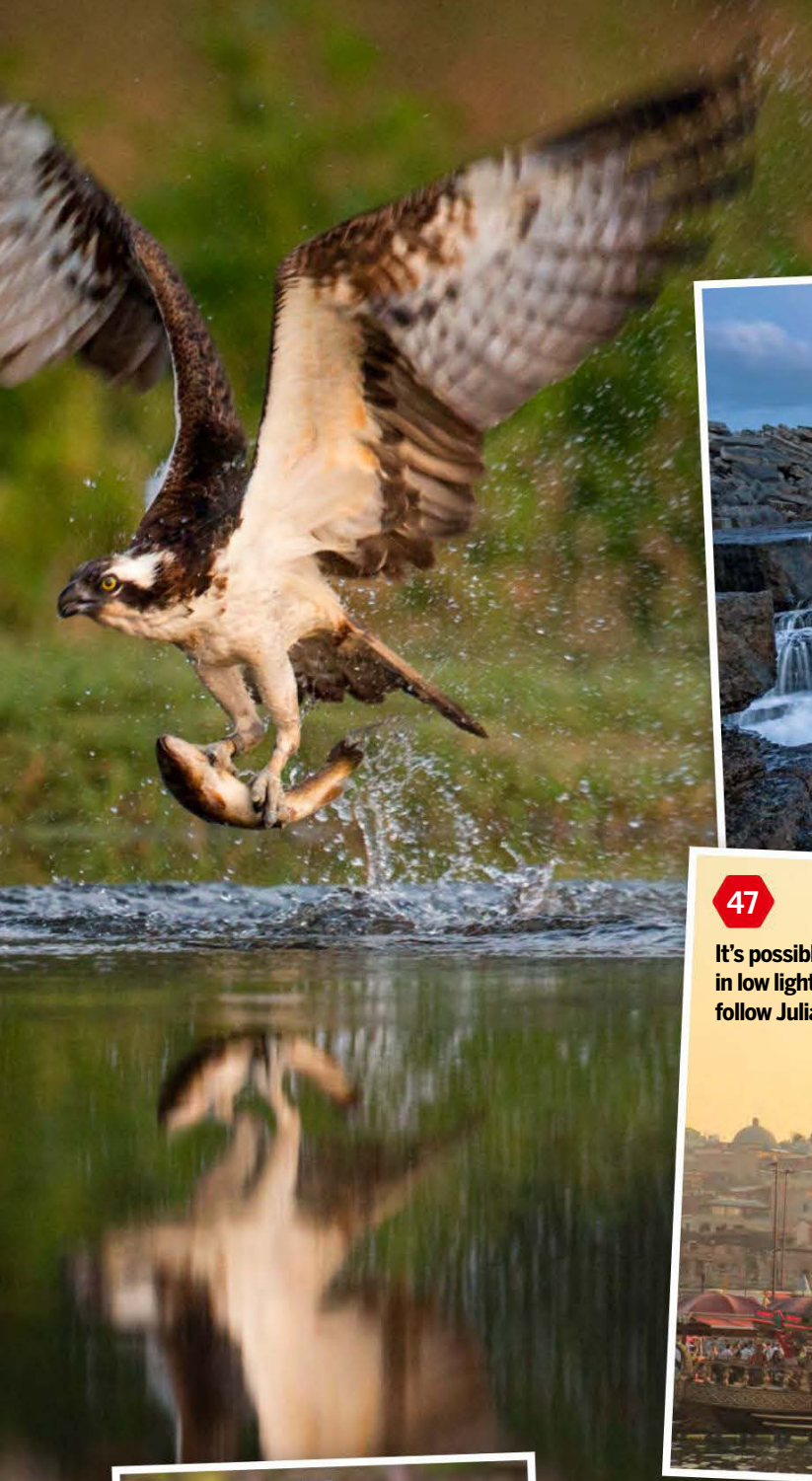


49

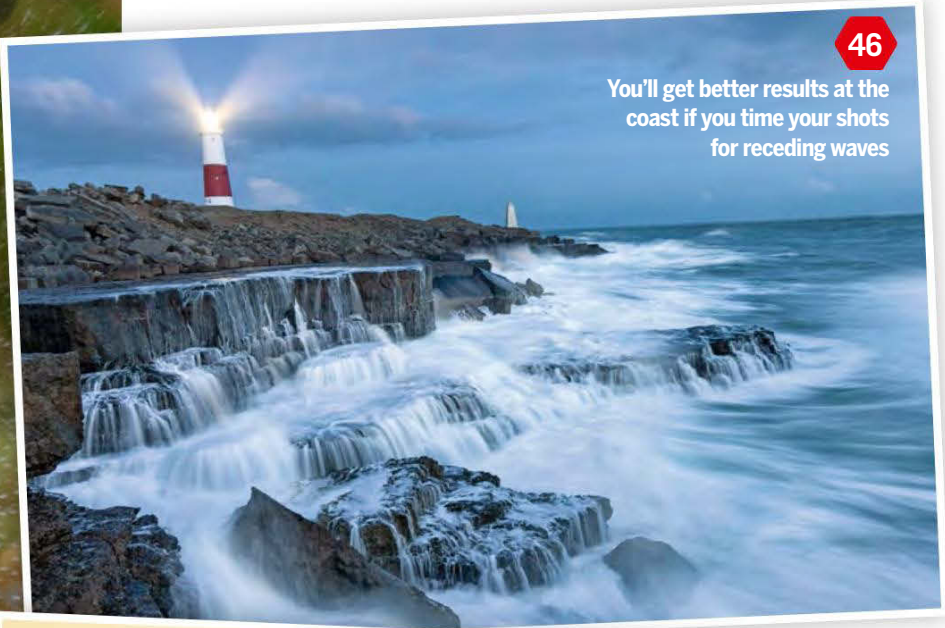
## Ultra-long exposures

**A LONG** exposure can lift a mundane scene by recording moving elements as a blur. Even at low ISOs and with narrow apertures, normal daylight conditions don't permit long exposures, but exposure time can be extended by using a strong neutral density filter, such as Lee Filters' Big Stopper. This 10-stop ND extends shutter speeds by 960x, turning an exposure of 1/60 sec into one that stretches for 15 seconds.

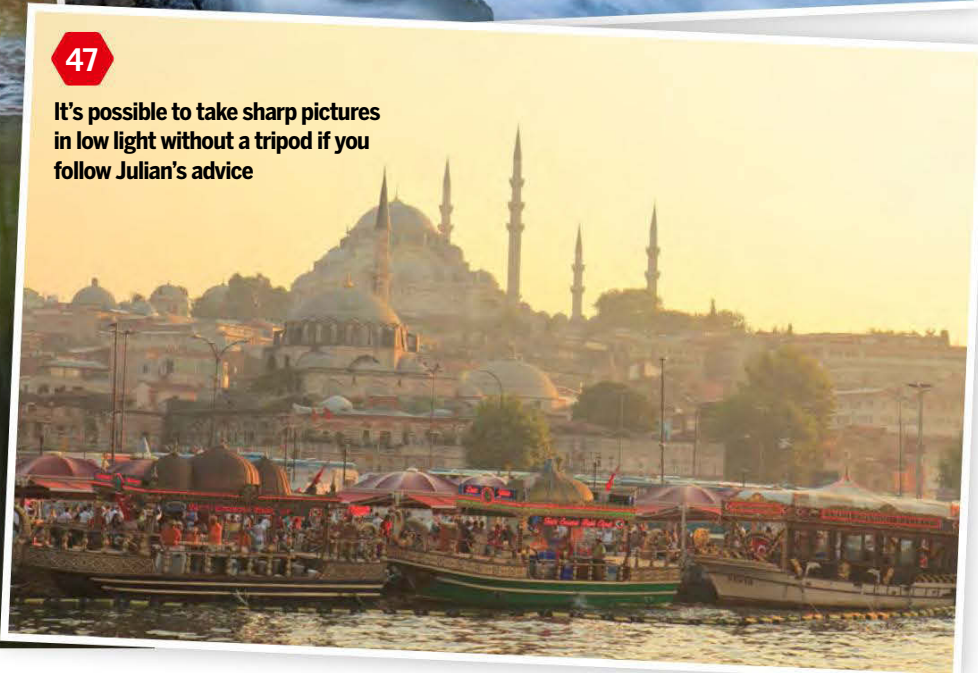


**46**

You'll get better results at the coast if you time your shots for receding waves

**47**

It's possible to take sharp pictures in low light without a tripod if you follow Julian's advice



## **50** ISO control

**HIGH SENSITIVITY** settings are useful when you need to shoot moving subjects or handhold the camera in low light because they allow you to use fast shutter speeds. As a rule, though, it's a good idea to keep within the 'native' ISO range and only use the expansion settings in an emergency. When the camera's mounted on a tripod and the subject isn't moving, use the lowest native sensitivity setting (ISO100) to minimize noise.

**51**

## Moving subjects in low light

A **FAST** shutter speed is essential to freeze movement, so if you're shooting a moving subject in low light there's no alternative but to use a wide aperture and/or high ISO. If you set the camera to Tv and Auto ISO, it'll adjust the aperture and sensitivity while you take care of the shutter speed. Once you've found a value that freezes the subject, stick with it and adjust the brightness using exposure compensation.

**52**

## Auto sensitivity

**USING AUTO ISO** in combination with Manual mode gives you all the power of Manual mode with zero hassle. It's a sort of Aperture and Shutter Priority in one, as you can set the combination of aperture and shutter speed you want, then just leave the camera to work out the correct ISO. Helpfully, several Canon DSLRs, including the 70D and 700D, allow you to set the maximum ISO value for Auto ISO, stopping the camera from using the noisy upper values. Some even let you specify a minimum shutter speed as well, so you can prevent blurred shots.





## Master Manual

Take the plunge with Manual, and get to grips with bracketing and exposure correction

53

Need to shoot quickly?  
Use the back of your hand  
to set the exposure

56

### Histogram

Use the histogram as a guide to your manual exposures, in the same way as you would for other shooting modes and avoid 'clipping' its right-hand edge.

57

### Set up your dials

By default your DSLR's control dials change exposure by 1/3 of a stop for each dial click. If you prefer, you can set this to 1/2 stop in the Custom Functions.

58

### Floating apertures

Many zooms have a narrower aperture at the long end than they do at the short end, so you'll need to remember to adjust the shutter speed or ISO to compensate.

59

### Manual mode for video

When shooting video, a good stock Manual mode setting is to set a shutter speed of 1/50 sec then use the lowest possible ISO your chosen aperture will allow.

### 60 Make test shots

**MANUAL MODE** used to be more tricky in the days of film, but these days, you can take a test shot and then adjust the exposure accordingly. Too bright? Simply increase the f-number,

shorten the shutter speed or lower the ISO. Too dark? Then either lower

the f-number, lengthen the shutter speed or up the ISO. By balancing the combination of shutter speed, aperture and ISO, you also have an extra degree of control over the depth of field, exposure length and image quality.



### 61 In the studio

**MANUAL MODE** is the ideal choice any time you're photographing a subject under controlled lighting conditions, such as in a studio. Set ISO to 100 and dial in a shutter speed of 1/200 sec, then control your exposure using aperture and flash power.

### 62 Take control of metering

**YOUR DSLR'S** metering system isn't as clever as you! Only you know which parts of a scene you want to be correctly exposed. For example, you might want a dramatic silhouette, while your metering system may instead expose for the subject. Many photographers use spot or partial metering in Manual mode, as this enables you to take a reading from a specific area of the scene.





**PRO TIPS****Water meter** Roger Sharp

**“SHOOTING SURFERS** in the water [53] is a hard business and getting manual settings right is tricky when the light is changing fast. Here’s a tip: for a quick ‘grey card’ reading, meter from the back of your hand. This gives you a ballpark exposure in the right range. It’s rarely 1/1000 sec at f/5.6 like in this shot, but the hand trick can be a lifesaver.”

**Do your homework** Ben McRae

**“PEOPLE THINK** that being a travelling photographer is all about capturing the moment as you see it, but you have to do your homework to put you in that moment. With this image of the Geisha [54] I had to spend time researching the street in Kyoto where I would actually get a glimpse of a Geisha and the precise times that they would be out and about.”

**Night life** Simon Butterworth

**“EXPLORE AN** area you want to photograph in daylight, using a compass to orientate yourself with light sources [55]. Learn routes to and from your intended subject – there’s nothing quite as frustrating as getting lost in the dark after your shoot. Never put anything on the ground beside your camera bag either. Going back in the morning to find remote cords, gloves and even a tripod can be very, very annoying!”

**54**

Put as much time  
into research as you  
do into taking photos

**55**

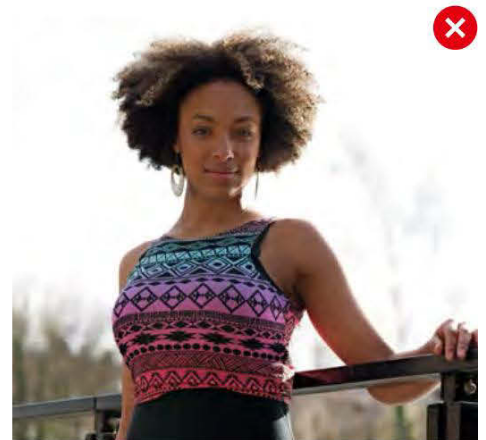
If you plan to use Manual  
to shoot at night, get set  
up in daylight!

**63 Exposure Compensation**

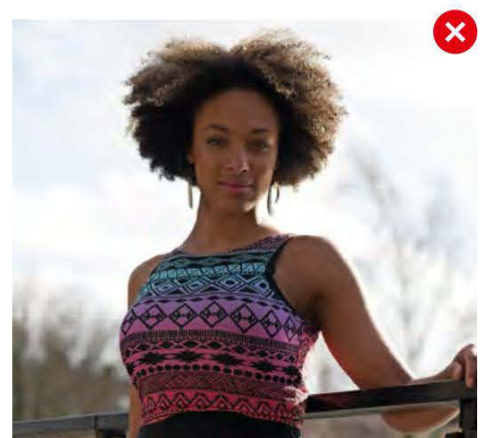
**YOU CAN'T** dial in Exposure Compensation in Manual mode in the same way as in the Av and Tv modes. However, you can still use the exposure indicator, visible in your viewfinder and top plate display, as a guide. As you have full control over aperture and shutter speed, it's up to you which you adjust to brighten or darken your exposures; the indicator will move along the scale as you make changes.

**64 Bright or dark?**

**THE POSITION** of the indicator on the exposure scale depends on the area being metered by the camera. As a rule of thumb, adjust your settings so that when you meter a midtone, such as grass or a pavement, the indicator is in the middle of the scale. If you point it at a brighter area, then it will move towards the '+' end, and then move towards the '-' end when it's pointed towards a darker area, but your midtone exposure will stay locked in.

**65 Auto Exposure Bracketting**

**BRACKETING MEANS** taking a series of frames close to what your camera considers to be the 'correct' exposure, just in case it's wrong. You can set up Auto Exposure Bracketting in your camera's red Shooting menu – look for 'Exposure comp/AEB setting' – or by selecting it on the Quick Control screen. The AEB function enables you to choose the exposure difference between the shots. If you need to fire the three frames quickly, set the camera's Drive mode to High-speed Continuous. Once you've got a set of exposures, you can choose the one that looks right, or even blend several using HDR software.





## Canon lenses

Make the most of your growing lens collection, from wide-angle to telephoto, primes to zooms

### PRO TIPS



**Gardener's World** Clive Nichols

**"I OFTEN** like to be in gardens at dawn on sunny days, but this means rising at 2am or 3am in the summer to be in a garden for 4:30am. Luckily this beautiful garden [66], Pettifers in Oxfordshire, is just down the road from where I live..."



**Light up your close-ups** David Southard

**"ADD SOME** fill light with either a reflector or a daylight-balanced LED to brighten your tiny subjects [67]. This technique avoids the complexity of flash and allows you to see the effect instantly, plus they're small and light to carry in your camera bag."



**50mm advantage** Amanda Thomas

**"I PREFER** to shoot with long lenses but for this fashion portrait I chose a shorter 50mm lens [68] to reduce distortion while keeping the verticals straight and maintaining the width."



66

Set the alarm clock! The best shots of summer gardens are usually taken at dawn



67

Brighten up macro subjects with a small silver reflector



### 69 Wide-angle view

**YOU CAN** go amazingly wide with your viewing angle, even when using rectilinear (non-fisheye) lenses like the Sigma 10-20mm and the new Canon EF 11-24mm USM (full test next issue), for cameras with APS-C or full-frame image sensors respectively. Curvilinear (fisheye) lenses extend the angle of view even further. It's easy to accidentally end up with your feet in the shot, especially for portrait (upright) orientation images. To avoid this, use Live View shooting mode and hold the camera at arm's length, away from your body.

### 70 Marvellous macro

**MACRO PRIME** lenses usually offer a full 1:1 or 1x reproduction ratio, which can deliver incredible levels of fine detail in extreme close-ups. Even when using a narrow aperture at very short focusing distances, the depth of field can be as little as 4mm or so. Accurate focusing is therefore critical, so the use of a tripod and manual focusing in magnified Live View mode on the LCD screen often yields best results. Live View also avoids blurred macro shots from 'mirror-bounce', as the camera's reflex mirror doesn't flip up immediately before the shot is taken.



### 71 Telephoto lenses

**BUDGET TELEPHOTO** zooms typically have a fairly 'slow' and variable aperture that shrinks from f/4 to f/5.6 as you extend through the zoom range. 'Fast' 70-200mm telephoto zooms generally have a constant-aperture of f/2.8 or f/4 which, along with their physical length, remains fixed throughout the zoom range. Super-tele zooms are popular for greater telescopic effect, usually covering anywhere from a range of 100-600mm. Image stabilization can be a massive bonus for handheld telephoto shooting.





68

A 50mm lens offers a 'standard' viewpoint that doesn't distort or exaggerate the subject

72

### Step it up

Canon's range of STM (Stepping Motor) autofocus lenses give smooth and virtually silent operation. They're good for stills but even better for video recording.

73

### Night vision

While it's good to protect a lens with a UV or skylight filter, remove it for night photos to reduce the risk of ghosting from bright city lights or the moon.

74

### Get a hoodie

For many lenses, hoods are sold as optional extras. They're well worth buying though, as they add protection to the front of the lens as well as reducing flare.

75

### Tape it

Big zooms can suffer from 'zoom creep', which can be a problem when shooting at upward or downward angles. Apply Gaffa tape to keep the zoom setting fixed.

76

### It's fixed

**FOR LENSES** that feature an 'internal focus' system, the front element neither extends nor rotates during focusing. It's a bonus when using circular polarizers and graduated neutral density filters, as their position won't change when the lens is focused. If your lens isn't this type, you'll need to make sure you focus first before adjusting the filter.



The Canon Magazine

77

### Tilt and Shift

**THE TILT** mechanism of these specialist lenses enables you to alter depth of field, from a tiny amount to a practically infinite amount. Meanwhile, the shift facility counteracts perspective distortion, useful for stopping high buildings appearing to lean inwards at the top.



78

### Fast standard zooms

**THESE ARE** great for combining the convenience of a zoom with the kind of wide maximum aperture associated with prime lenses. The tight depth of field is ideal for blurring the background in portraits, and faster shutter speeds are a bonus. Two of our favourites are the Canon EF-S 17-55mm f/2.8 IS USM (£575/\$879) for APS-C cameras and the Tamron SP 24-70mm f/2.8 Di VC USD (£750/\$1299) for full-frame.







## Flash photography

Understanding flash can help you transform ordinary scenes into the extraordinary

79

For flash-lit portraits, a narrow aperture will darken skies and create a sun-burst effect

82

### Sync speeds

Canon DSLRs typically have a flash sync speed of 1/200 or 1/250 sec. If you use a faster setting then you may see part of your image obscured by a dark band.

83

### Modelling light

Speedlites have a modelling light feature to show where the light will fall on your subject. Press your camera's depth of field preview button to activate it.

84

### Fake warmth

Want to warm up the light from your flash so that it blends in better at sunset or sunrise? Simply stick an orange gel over the face of your flashgun.

85

### Manual power

You can use a flashgun's Manual mode to adjust its output, rather than relying on E TTL. Start at 1/8 or 1/4 power and work up or down to get the best results.

### 86 Pop-up to fill-in

**MANY EOS** cameras have a built-in flash. While this might not offer the flexibility and range of a separate flashgun, it can come to your rescue. One of the best times to use it is when taking a portrait in sunny conditions. If the person is in shadow, a blast of 'fill-in' flash from the camera's integral flash will help to even out the lighting, making your shot look more appealing.



### 87 Buy the best you can

**A DECENT** flashgun isn't cheap. But the simple truth is the more you spend, the more creative options you open up. Canon's top-end Speedlite 600EX-RT might be too rich for many, but the cheaper Speedlite 320EX still offers wireless slave technology and a head you can adjust. Third party manufacturers, such as Metz also offer reasonably priced, feature-rich models.



### 88 Off-camera flash setup

**NEWER CANON** DSLRs enable you to control your flash from the camera menu. Here you can use your pop-up or flashgun on your camera's hotshoe as a master to fire a compatible remote flashgun (or flashguns).





## PRO TIPS



### Balanced daylight flash Brett Harkness

**"I WANTED** to add some drama to this image [81] so chose a low viewpoint to draw the viewer into the frame. Using PocketWizard Plus III triggers to fire my Elinchrom Ranger lights fitted with softboxes meant that I was limited to the camera's flash sync speed (1/250 sec). So using a narrow aperture of f/20 meant that the background was beautifully underexposed, creating a funky-looking wedding portrait!"



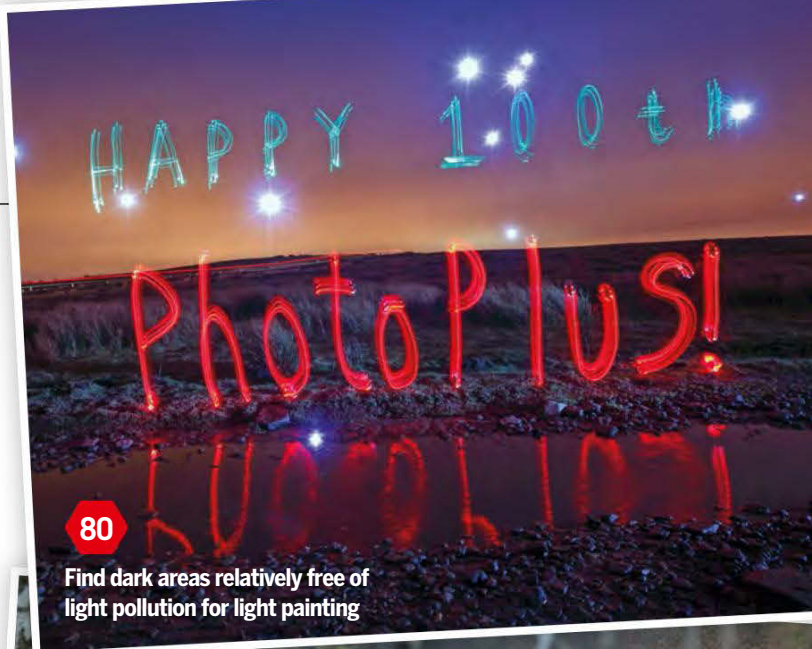
### Painting with light Michael Bosanko

**"FOR SHARP,** clean light painting [79], shoot at night away from ambient light. Place your camera on a tripod, set to Bulb mode and manually focus on an area illuminated by a torch. Use an aperture of f/5.6-f/8, along with a low ISO, and experiment with shutter speeds – I used 252 secs here, keeping the shutter open with a remote release."



### High-speed, off-camera flash Adam Duckworth

**"FIRING YOUR** flash off-camera to highlight certain parts of a scene can add real drama to your photos. For this shot [80], two Canon 580EX Mark II flashguns were used to the left side of the frame. I used an exposure of 1/800 sec at f/3.2, ISO400, to freeze the action yet keep some of the background detail, with the flashes set to high-speed sync and triggered by PocketWizard FlexTT5s."



80

Find dark areas relatively free of light pollution for light painting



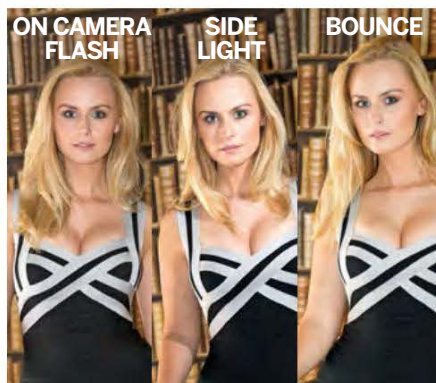
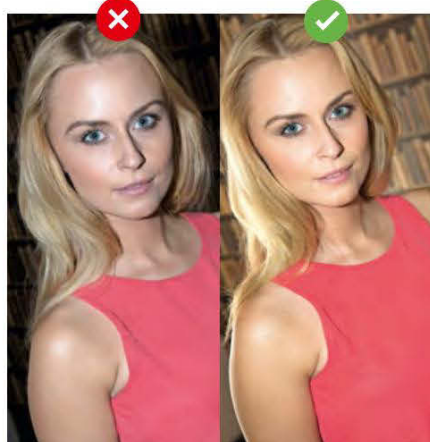
81

Adam used one flash to highlight the dust and another to add subtle light to the rider's eyes

89

### Exposing with lights

**WHEN YOU'RE** using flash light on location, remember to first set your exposure for the ambient light, then adjust your lighting power to light your subject. We started off here with an exposure of 1/200 sec at f/8 and ISO400, which leaves the background in darkness. Whereas an exposure of 1/80 sec at f/5.6 and ISO1600 has brightened the background and our model. Increasing the ISO is one way of 'projecting' the flash further as it increases the sensitivity of your Canon DSLR's sensor.



90

### Lights on location

**ONE OF** the big benefits of a flashgun is that you can direct the light where you want it for more flattering portraits. Try firing the flash off-camera on a stand/tripod for dramatic side light. For super-soft light, bounce your flash: instead of pointing it directly at your subject, tilt and/or swivel the flash head so that the light hits a ceiling, wall, or any kind of reflector before being redirected back again. As the light is spread out, it will appear much more natural. However, your reflective surface needs to be neutral in colour or this will introduce a colour cast. See p64 for more on bounce flash.

91

### Affordable studio lighting

**IF YOU** want to do a lot of indoor flash work then consider a set of budget studio lights for still life and portrait setups. Studio kit doesn't need to be expensive – a budget two-light kit from a reputable firm, such as Interfit, will cost you less than £300!





## Customise your EOS

Speed up your photography by learning how to adapt your camera to your style of shooting

### PRO TIPS



**Keep it simple** Heather Buckley

**“LOOK AT** your composition as a series of shapes dividing up the frame. Here, this shot of a girl in a caravan at Ballinasloe Horse Fair in Ireland [92] works even though she is at the edge of the frame because the series of rectangles are balanced. Simplicity will always work if you carefully consider the balance of positive and negative shapes.”



**Avoid burnout** Bragi J Ingibergsson

**“THIS IMAGE** [93] was taken close to my hometown Hafnarfjörður in Iceland; there was still a little snow on the ground, which acted as a reflector, so the lighting conditions were very good. When dealing with white wildlife subjects like this, I find it helpful to use a little underexposure to prevent areas in bright light becoming burned out.”



**Dramatic B&W portraits** Christian Hough

**“LIGHT AND SHADOW** are like yin and yang, so it's important to make the most of both. Utilise hard flash-light sources to maximize the shadows and draw out the mood [94]. When processing your image, convert to monochrome and ramp up the contrast, tweaking the Channel Mixer to lock in the tonality and make your black-and-white portraits pop.”



**92** Improve your composition by focusing on lines and shapes



**93** Watch out for hotspots when you're photographing white subjects in bright light

### 95 Custom dial setting

**CUSTOM SHOOTING** modes (C1, C2, C3) first appeared on the EOS 5D to allow a snapshot of the camera settings to be saved (via the menu) for instant recall. Virtually all custom functions and user settings are saved with the snapshot.

Since the EOS 5D Mk III the option has existed to allow updates to be automatically saved when using the custom shooting modes. The EOS 5D series, 60D, 70D, 7D, 7D Mk II, 6D and 1D X all have one or more custom shooting modes.



### 96 Back button focus

**CUSTOM CONTROLS** allow you to optimise your Canon camera to the way you work. One such example is back-button focus. This shifts the control of how your camera focuses to the rear AF-ON or \* button. You press the button to focus, and release to stop focusing. This means that half-pressing the shutter button activates the metering, and doesn't affect focusing.



### 97 Picture Styles

**PICTURE STYLE** determines how the camera will process an image. Even if you shoot Raw, the image on the camera's LCD is processed in accordance with the selected Picture Style settings. It is also possible to create or download and install your own custom Picture Styles to your camera using Canon's Picture Style Editor.





94

Discover creative new ways to light your a model in order to produce more striking portraits

98

### Auto rotation

The camera rotates images on the rear LCD display by default, but choosing the second of the three auto rotate options will make portrait pictures fill the LCD.

99

### Add your details

Most EOS cameras allow copyright text to be configured from the Set-up menu. This is stored in each picture and can be read by many software applications.

100

### Viewfinder warnings

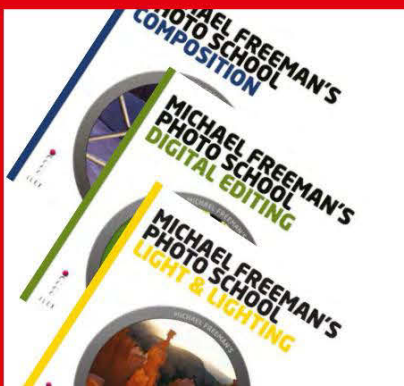
Newer DSLRs like the 760D let you add alerts to the viewfinder, such as the Monochrome picture style having been set. So you'll never make a mistake again!





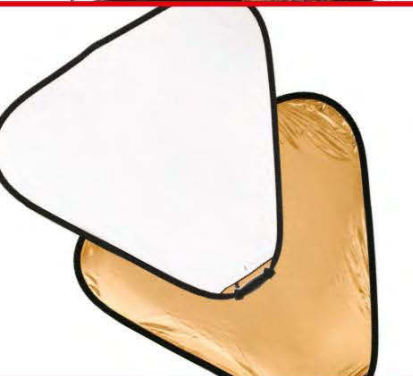
**PhotoPlus** 100<sup>TH</sup> ISSUE COMPETITION

# WIN! PHOTO GEAR WORTH OVER £6,750



Winner takes it all competition! Enter now to win all this amazing photo kit to accessorize your Canon DSLR and help improve your photography





**PhotoPlus** issue 1 launched back in October 2007, and, after 99 more amazing issues, we wanted to do something special to celebrate our landmark 100th edition. We asked our friends in the photo industry to donate a few prizes for an amazing winner-takes-it-all competition – and boy, have they delivered!

Prizes include a Tamron superzoom, Elinchrom lighting kit, a Manfrotto backpack and tripod, a Canon DSLR, an Epson A3+ printer, Páramo wet-weather clothing, a Sigma flashgun, a Photoshop CC sub – and even a weekend photo workshop for two, photographing bears in the Bavarian mountains! Better still, one of you lucky readers will walk away with the entire prize package, worth over £6,750!

**TURN THE PAGE FOR A FULL PRIZE BREAKDOWN AND HOW TO ENTER**





# PhotoPlus 100<sup>TH</sup> ISSUE COMPETITION

FULL PRIZE LIST!



## 01 Sigma EF-610 DG Super

**£259** [www.sigma-imaging-uk.com](http://www.sigma-imaging-uk.com)  
This flashgun offers full E-TTL II control, rear-curtain sync, and a powerful Gn 61 output

## 02 Tatra Photography four-day photo workshop for two

**£1100** [http://bit.ly/pp\\_tatra](http://bit.ly/pp_tatra)  
Three-night, four-day photo workshop with Canon pro wildlife photographer Ben Hall to photograph Europe's great predators, including bears, lynxes, and wolves (return flights from London Gatwick to Prague included)

## 03 Adobe Photoshop Creative Cloud Photography Plan

**£102** [www.adobe.com/uk](http://www.adobe.com/uk)  
Adobe is the market leader in photo-editing software and this year-long subscription gives access to: Lightroom 5, a solution for organising and editing your images; Photoshop CC, a powerful, professional image editor; and mobile apps Lightroom Mobile and Photoshop Mix

## 04 LowePro Nova Sport 35L

**£90** [www.lovepro.co.uk](http://www.lovepro.co.uk)  
This photo enthusiast's adventure shoulder bag features space for a laptop and plenty of gear

## 05 Tamron 16-300mm f/3.5-6.3 Di II VC PZD Macro

**£480** [www.tamron.co.uk](http://www.tamron.co.uk)  
From wide-angle to telephoto, this is the world's most versatile superzoom lens

## 06 Manfrotto 055 tripod & MHXPRO-3W X-PRO head

**£300** [www.manfrotto.co.uk](http://www.manfrotto.co.uk)  
Brilliant tripod and head combo from Manfrotto

## 07 Manfrotto Pro Light 3N1-35PL

**£245** [www.manfrotto.co.uk](http://www.manfrotto.co.uk)  
Offering three active carrying options in one, this unique backpack has oodles of space

## 08 Magix PhotoStory 2015 Deluxe

**£70** [www.magix.com/gb/photo-premium](http://www.magix.com/gb/photo-premium)  
Image-editing, graphic design and top-quality slideshows in one amazing software bundle

## 09 Experience Seminars DVDs

**£69** [www.eostrainingacademy.co.uk](http://www.eostrainingacademy.co.uk)  
A selection of five brilliant Canon-specific training DVDs

## 10 Páramo jacket and trousers

**£370** [www.paramo.co.uk](http://www.paramo.co.uk)  
Wrap up against the elements in a Velez Adventure Smock Light and Velez Adventure Trousers – which come in mens and women's versions

## 11 Lastolite Tri-Grip Reflector

**£93** [www.lastolite.co.uk](http://www.lastolite.co.uk)  
This easy-to-hold triangular reflector is perfect for one-handed operation

## 12 Lastolite Out of Focus Collapsible Background

**£119** [www.lastolite.co.uk](http://www.lastolite.co.uk)  
Summer Foliage & City Light 2-in-1 pop-up backdrop

## 13 Future Master Your Canon handbook & DVD

**£25** <http://bit.ly/mastercanon>  
Get to grips with your Canon EOS DSLR, produced by the makers of PhotoPlus

## 14 Lexar memory cards

**£400** [www.lexar.com](http://www.lexar.com)  
64GB 2000x SDXC & 64GB 1066x CompactFlash cards

## 15 Hähnel Giga T Pro II

**£75** [www.hahnel.ie](http://www.hahnel.ie)  
Remote release with full intervalometer functionality

## 16 ProMediaGear PMG Ball Head & Tomahawk Gimbal

**£500** [www.promediagear.com](http://www.promediagear.com)  
Top-quality ball head and gimbal attachment for action and wildlife photography

## 17 Epson Expression Photo XP-950

**£240** [www.epson.co.uk](http://www.epson.co.uk)  
All-in-one printer and scanner with top-quality A3+ output

## 18 Toshiba Exceria Pro 1066x

**£180** [www.toshiba-memory.com](http://www.toshiba-memory.com)  
64GB CompactFlash and 32GB SDHC memory cards

## 19 Alpine Laboratories Michron

**£40** [www.alpinelaboratories.com](http://www.alpinelaboratories.com)  
Create time-lapse sequences easily with this clever device



# WIN OVER £6,750 OF PHOTO GEAR!



## 20 Gloxy Battery Grip

**£61** [www.digitaltoyshop.co.uk](http://www.digitaltoyshop.co.uk)  
Double your shooting time and increase usability with grips for various EOS models

## 21 G-Technology G-Drive Mobile

**£90** [www.g-technology.com](http://www.g-technology.com)  
Portable 1TB hard drive with Thunderbolt and USB 3.0

## 22 Elinchrom D-Lite RX 4

**£630** [www.wdc.com/en](http://www.wdc.com/en)  
This two-head flash lighting kit is lightweight yet well-built, comes with two softboxes, and won Best On Test in our Super Test in issue 99, so comes highly recommended

## 23 Sekonic L-308S Flashmate

**£149** [www.jpdistribution.co.uk](http://www.jpdistribution.co.uk)  
This pocket-sized light meter is small and light, and displays exposure readings in full, half, or third-stop increments

## 24 Billingham Hadley Pro

**£200** [www.jpdistribution.co.uk](http://www.jpdistribution.co.uk)  
Classically styled shoulder bag with a funky colour scheme

## 25 Ilex Michael Freeman books

**£200** [www.ilexinstant.com](http://www.ilexinstant.com)  
*Photographer's Eye Box Set*, *Photographer's Eye DVD Series* & *Photo School Series*

## 26 X-Rite ColorMunki Display

**£200** <http://shop.colourconfidence.com>  
Calibrate your monitor for perfect colour reproduction

## 27 X-Rite ColorChecker Passport

**£200** <http://shop.colourconfidence.com>  
Get spot-on colours in-camera

## 28 Western Digital My Passport Wireless 1TB

**£129** [www.wdc.com/en](http://www.wdc.com/en)  
Carry your photos everywhere and access them over Wi-Fi

## 29 Canon EOS 100D + EF-S 18-55mm f/3.5-5.6 IS STM

**£359** [www.canon.co.uk](http://www.canon.co.uk)  
The smallest, lightest DSLR in Canon's range packs a punch with a Digic 5 processor, 4fps burst rate, 3in touchscreen LCD, and 18Mp Hybrid CMOS AF II sensor for accurate focusing via Live View

## HOW TO ENTER

To be in with a chance of winning this great prize package, just answer this simple question:

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**A. OCTOBER 1985**

**B. OCTOBER 2000**

**C. OCTOBER 2007**

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# On the beach

Mui Ne fishing village, Vietnam. 18:00 local time. 27 January 2015.

*In a new series, David Noton talks about the photographic decisions he makes as he shoots captivating subjects from around the world...*

**I** had a photography college lecturer whose advice has stuck with me through the decades. It was just three words... bend the knees. Sound advice, not just for skiing but more importantly for my photography ever since; getting down low can often open up a whole new world of photographic opportunities.

Well I'm certainly bending the knees now as I squat on the beach by this lady who is shelling seafood. She will spend all day squatting like this. My joints are screaming already after just ten minutes. Or has it been 30? Long enough, but the picture is coming to me. I'm using the brand-new EF 11-24mm f/4L super-wide zoom lens on the job here, which means I'm close, very close, to my victim... sorry, subject. So close our knees are almost touching, and yet it's as if I'm invisible.

Now, I have been to many places around the world where photographers are treated with suspicion and downright hostility, but here the lady seems completely unfazed by my proximity. She looks up briefly from her work towards her companion over my shoulder and the 14fps drive of the 1D X chatters. Oh yes. Fun this, isn't it?

With the shot in the can I switch to my favourite lens for travel portraiture, the EF 85mm f/1.2L II. I do like fast glass; at its maximum aperture of f/1.2 the depth of field is almost nonexistent, but the background bokeh is so appealing, addictive really. This is not an easy lens to use at this aperture; focusing is super critical, but I've evolved a way of working that ensures a good hit rate; select the appropriate AF point for the composition and AI Servo AF mode to follow focus on the nearest eye, and concentrate. The sun is dipping low now in the late afternoon so the contrast under her hat is manageable, even so I'll need to do the post production on this one carefully to bring out the detail on her face whilst retaining information in the bright background. I take a test shot to determine exposure

and dial in +2/3-stop compensation in Av mode using evaluative metering, as always. My fishy lady looks up again as I press the back-button focus button, then the shutter release. It's all over in a second and my lady is peering down again at her clams.

It's now time to investigate other options. I go back to using the 11-24mm lens and move over to where another two ladies are busy peeling prawns. The sand on the beach has long been submerged under generations of discarded shells; it crunches underfoot but the texture of it lit by the setting sun is beautiful. I find my chosen lady, admiring her colourful clothing. With the zoom at its widest 11mm focal length, I'm hovering directly over her, and yet again it's as if I'm invisible. I'm using this lens to incorporate the graphic shapes of their conical hats, the beach and the fishing boats into my frame, setting the scene of Mui Ne with a large depth of field. The hats not only feature as strong compositional elements, they identify that the photo is from Vietnam. I crouch even closer, remembering another nugget of advice from my lecturer; if a picture's not working, you're not close enough.

The sun dips below the horizon, all too quickly as ever in the tropics, and it's game over. I climb on my moped and ride back along the coast road to my hotel in the hills overlooking the beach. I cast one last glance over the sea of conical hats under which the ladies are still squatting over their piles of crustaceans. Tonight, it's Vietnamese mango seafood curry for dinner. I love it here. It's my fourth time in Vietnam, but I doubt it will be my last.

**NEXT MONTH: ICELAND!**

**Two very different travel portraits: one shot on a wide-angle 11-24mm (top), and (above) on an 85mm telephoto shot wide-open at f/1.2**

Camera	Canon EOS-1D X
Exposures	f/9, 1/40 sec & f/1.2, 1/2000 sec, ISO100




## DAVID NOTON

Pro travel & landscape photographer

**DAVID IS AN AWARD-WINNING** Canon photographer with more than 28 years' professional experience. During his career David has travelled to just about every corner of the globe. In 2012, Canon invited David into its Ambassador Program by designating him an Official Canon Explorer. Info and photos at [www.davidnoton.com](http://www.davidnoton.com)





**// I'm very close to my  
victim... sorry, subject.  
So close our knees are  
almost touching //**

**Ladies de-shelling seafood, in Mui  
Ne, Vietnam, shot close-up from  
above with an ultra-wide lens**

**Lens** Canon EF 11-24mm f/4L USM

**Exposure** f/9, 1/60 sec, ISO100



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# CanonSkills

*Sharpen up your photography skills with our all-new photo projects and expert guides*



Hollie Latham  
Technique editor  
hollie.latham@futurenet.com

## New projects with video guides

Follow our Canon DSLR walkthrough guides and Photoshop editing videos

### Welcome...

**AFTER** 99 fantastic issues of *PhotoPlus* we've upgraded the Canon Skills section so there's more emphasis on hands-on DSLR projects for you to try to improve your shooting skills.

With spring in full swing we've got four great outdoor projects for you to try with your Canon camera. Learn to shoot in-camera HDR scenes with minimal fuss, enhance blue skies in your scenes by using a polarizer, master perspective to ensure your compositions pack a punch, and for something more creative, try free-lensing for some unique results. Heading indoors, we show you to get the most from flash-lit portraits by bouncing flash off walls and ceilings for more flattering results.

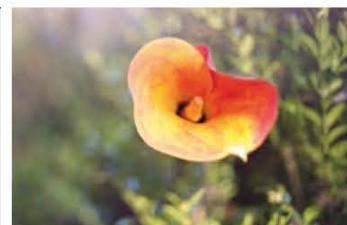
We've also got a trio of fantastic image-editing tutorials in Adobe Photoshop Elements, CC and Lightroom, so whatever software you use in the digital darkroom, there's something for everyone.



**56 Shoot in-camera HDR**  
Shoot high dynamic range scenes with the built-in HDR mode with James Paterson



**60 How to use a polarizer**  
Increase colour and contrast to enhance blue skies and add impact with Peter Travers



**62 Go free-lensing**  
Free your DSLR lens to capture creative and unique shots with Tom Welsh



**64 Master bounce flash**  
When and how to use bounce flash to improve your indoor portraits with Chris George



**66 Get some perspective**  
Learn how perspective can add impact to your compositions with Hollie Latham



**70 Create a composite**  
Blend images using the new Photomerge Compose feature in Photoshop Elements



**72 Young at heart**  
Bring out your inner child and master the pixel-pushing tools in Photoshop CC



**74 Import images**  
Learn how to import your images and apply quick fix edits in Lightroom

### VIEW THE VIDEOS

**WHENEVER** you see this icon you'll find an accompanying video – tap the link and the video will 'pop-out' of the page (as long as you have an internet connection). You can also download project files to your computer.





## PROJECT 1

### THE MISSION

Create HDR images in-camera with Canon's HDR Mode

**Time needed**  
One hour

**Skill level**  
Easy

**Kit needed**  
Canon DSLR with HDR Mode; EOS 70D, 6D, 7D Mk II, 5D Mk III (or later)  
Tripod (optional)

# Hyper-real HDR

Get the best out of Canon's recent built-in HDR feature. **James Paterson** explains how and when to use it to extend your DSLR's dynamic range

**N**ewer Canon DSLRs offer a built-in HDR mode that merges three exposures in-camera. This enables you to tackle a variety of high-contrast scenes head-on by extending the camera's dynamic range, which means you can record detail in the brightest highlights and darkest shadows.

It's a handy feature that adds another weapon to your creative arsenal, whether you shoot

'serious' HDRs, or are just after a fun effect while out and about.

The HDR Mode takes three bracketed exposures. All you do is press the shutter and the camera fires three times continuously in quick succession. There's no need to hold the shutter or set a Drive mode (although a fast drive mode will mean shorter gaps between shots). Then it takes about ten seconds to merge the frames and produce the finished HDR image.

You wouldn't expect the in-camera HDR Mode's to match

dedicated software, but there are several useful settings and a surprising degree of control. You can decide the difference in stops between the three frames, and choose from five different 'Effects' modes for a variety of HDR looks.

The original frames can be shot in Raw (or JPEGs on some DSLRs like the 70D), but the merged HDR is a JPEG. You can keep the originals (not on the 70D) so, if you're unhappy with the result, you can always process the images later with HDR software. **pp**



## WHAT IS HDR?

High dynamic range imaging is a technique that allows for greater dynamic range than a camera could achieve in a single frame. Simply put, it combines detail from the brightest and darkest parts of a scene, without having to sacrifice one for the other. To shoot for HDR, you need three or more exposures at incremental differences, so all parts of the scene are correctly exposed across the range of frames. The files are then merged and 'tone-mapped' to reveal detail, add contrast and create a hyper-real HDR look.

## STEP BY STEP SET UP YOUR DSLR FOR HDR

The HDR Mode menu has several features to control the look of the merged image



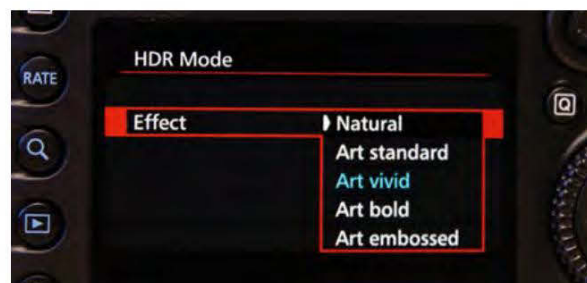
### 01 SET DYNAMIC RANGE

Go to the HDR Mode menu. By default, it's set to 'Disable HDR'. Switch to any other setting to enable HDR Mode. Choose a dynamic range to set the difference in exposure, from Auto or 1-3 stops.



### 03 AUTO IMAGE ALIGN

Even those with the steadiest of hands will find it hard to shoot three frames handheld that are in perfect alignment. The Auto Image Align feature can help by fixing slight differences between frames.



### 02 CHOOSE AN EFFECT

Give your HDR one of five looks with the Effect menu. These range from Natural, which produces a flat-toned result with subtle extra detail, to Art Embossed, which creates a desaturated embossed look.



### 04 HIGH DRIVE SPEED

The camera will fire three times when you hit the shutter. To minimise any effect of movement in the scene shoot the sequence as quickly as possible, so set your Drive mode to High-speed Continuous.





## ESSENTIAL CAMERA SKILLS TOP TIPS FOR HDR



### 01 USE A TRIPOD

For precise alignment between the frames, use a tripod to keep the camera steady. A cable release and mirror lockup also help to prevent movement. Turn Auto-Align off, as it crops the image.



### 02 STEADY HANDHOLDING

When handholding, turn on Auto Image Align. This works surprisingly well, but it still pays to keep your camera as steady as possible. Lock your arms, breathe out, and hold still while shooting.



### 03 FRAME LOOSELY

If you shoot handheld then be aware that, with Auto Image Align enabled, the processed JPEG will be cropped in slightly. So take this into account when framing the shot and leave room around the edges.



### 04 CAMERA SETTINGS

The feature takes some control out of your hands. Whichever mode you're in, even Tv, the aperture stays constant while the shutter speed varies; this prevents changes in depth of field between the three frames.



### 05 AVOID MOVEMENT

Watch for movement within the frame as this'll ruin the effect, resulting in ghosting or messy edges. Ask people to stay still, wait until the wind drops, and avoid moving foliage like long grass or leaves.



## SELECT AN HDR EFFECT FIVE DIFFERENT OPTIONS

Choose from one of five HDR Effects for a variety of looks, from the subtle to the hyper-real



± 1 STOP



± 3 STOPS

### CHOOSING DYNAMIC RANGE

The Dynamic Range setting enables you to set the difference in exposure between the three frames. There are four options: Auto, ±1 EV, ±2 EV and ±3 EV. From an angle like this, where the objects in the foreground are in deep shade, a single exposure couldn't possibly record detail in both the rocks and the sky. A ±1 stop dynamic range begins to introduce detail, but a ±3 stop range results in a lot more cloud detail and is more obviously an HDR image.

**NEXT MONTH  
SHOOT SILKY  
SEASCAPES**



#### 01 ORIGINAL IMAGE

Straight out of camera, a single frame struggles to record detail in either the sky or the foreground in this high-contrast scene. This is a good time to switch to HDR Mode and choose an effect.



#### 02 NATURAL

Natural produces a flat effect, but with greater detail. There are a broader range of tones than you can initially see, so it's a good one if you want to apply local contrast or fine-tune the toning later.



#### 03 ART STANDARD

Art Standard is slightly more stylised than Natural, with more aggressive toning to tease out detail in the highlights and shadows. It's a good compromise between subtlety and impact.



#### 04 ART VIVID

In Art Vivid, the contrast and detail are similar to Art Standard, but as the name suggests, it pushes the colours more, so it's a useful one if the colours in the scene are lacking impact.



#### 05 ART BOLD

Art Bold applies greater contrast and pushes the detail further than Art Vivid or Art Standard, but can lead to unattractive haloes along edges, particularly in busy scenes like this.



#### 06 ART EMBOSSED

Art Embossed reduces colour saturation so that midtones appear greyed out, while edge details are enhanced. It's the least useful of the effects, but may work on grungy interiors.



## SOFTWARE PROCESS HDR ON YOUR PC

Unhappy with in-camera HDR? Process the originals in dedicated software



### 01 PRESERVE THE ORIGINALS

On most Canon DSLRs, you can choose to preserve the three original images shot in HDR Mode by setting Save Source images to All Images. This gives you the option to process them later in HDR software if the in-camera HDR isn't to your liking. Be sure to shoot in Raw for maximum tonal detail.



### 02 USE PHOTOSHOP HDR...

To use Photoshop's Merge to HDR Pro command, go to File>Automate>Merge to HDR Pro. Once loaded, use the Highlights and Shadows sliders to control the tonal range and the Detail and Radius sliders to give it the HDR look. The presets in the dropdown can be a good starting point.



### 03 ...OR THIRD-PARTY SOFTWARE

Photoshop isn't the only option. Many HDR enthusiasts use dedicated software, such as Nik HDR Efex Pro (pictured), Photomatix Pro or 32 Float, which have many more presets for fine-tuning the HDR look. These either act as Photoshop plugins, or standalone software.

## CONTRASTING VIEWS GOOD & BAD HDR SUBJECTS

The greater the dynamic range of a scene, the better a candidate it is for the HDR treatment

**THE** distinctive HDR look – with edge haloes, saturated colours and grungy details – can be applied to almost any subject, depending on personal taste. But using HDR techniques more subtly as a utility (in other words, extending dynamic range beyond the limits of a single exposure) is most effectively applied to high-contrast scenes. Typical scenarios include landscapes at sunset with a dark foreground, subjects in shadow with their back to the sun, and gloomy interiors with bright windows. Scenes that work less well include flat, cloudy landscapes, subdued low-contrast subjects, and any scene with movement, like grass or people.



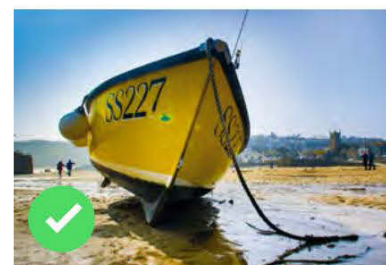
### INTERIORS

Interiors with windows work for HDR due to the big difference in light levels between the inside of the building and the outside world



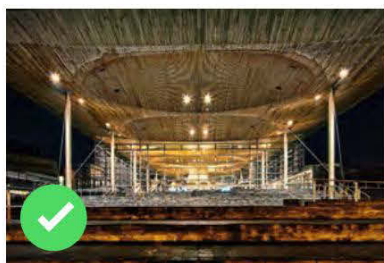
### CARS

Shiny metallic surfaces offer a good opportunity to push the HDR look further than you might go with a landscape



### SUNNY SCENES

In bright sunlight there's a big difference between highlights and shadows, which is ideal for the HDR treatment



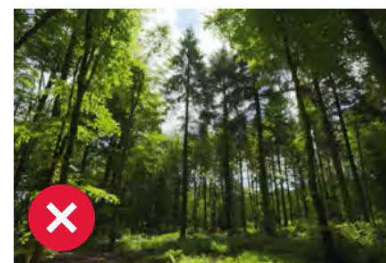
### NIGHT ARCHITECTURE

At night there's a huge difference in brightness between artificial lights and the surrounding structures



### MOVING CLOUDS

When clouds are moving fast across the sky it might result in unsightly ghosting, jumps and jitters in the HDR process



### BLOWING TREES

Branches, leaves and foliage are fine in calm conditions, but not so good if it's windy, so wait for a lull in the wind



## PROJECT 2

AFTER



BEFORE

Thanks to The National Trust Prior Park Landscape Garden: [www.nationaltrust.org.uk/prior-park](http://www.nationaltrust.org.uk/prior-park)

### THE MISSION

Learn to use a polarizer filter for punchier skies and to cut reflections

**Time needed**  
30 minutes

**Skill level**  
Beginner

**Kit needed**  
Circular polarizer  
A bright, sunny day with a blue sky and fluffy, white clouds

# Polarized opinions

Attaching a polarizing filter to your lens can completely transform blue skies in your landscape shots. **Peter Travers** explains how to use one

**A circular polarizer is one of the most useful filters you can buy for your Canon DSLR as its unique effects simply can't be replicated in Photoshop.**

Screwing into the front of your lens, it has the power to make contrast and colours in your landscape shots look more intense, to cut out unwanted reflections from glass and water, and even remove the sheen on shiny surfaces like cars. A polarizing filter is especially useful for landscape photography

when you're shooting scenes that include blue sky with fluffy white clouds, or big expanses of water.

The filter removes or reduces the amount of polarized light that's reflected from the sky, water or other surface. But as our eyes can't see the difference between normal light and polarized light, its effect can be rather hard to predict. You often simply have to try it to see whether it's going to help the scene you're shooting.

The filter is constructed with a rotating front element – the orientation of the glass needs to

be adjusted to match the direction of the polarized light. Generally, you turn the filter until you can see the maximum effect possible through the viewfinder. It's best to rotate the outer ring in an anti-clockwise direction when adjusting the polarizer to avoid unscrewing the filter from your lens by accident.

The effect is most pronounced when the sun is at 90 degrees to the scene, so it has little impact when shooting with the sun behind you. Similarly, it has little effect in overcast conditions. ☼



# STEP BY STEP USING A CIRCULAR POLARIZER

We show you how to transform your shots with this simple but effective lens accessory



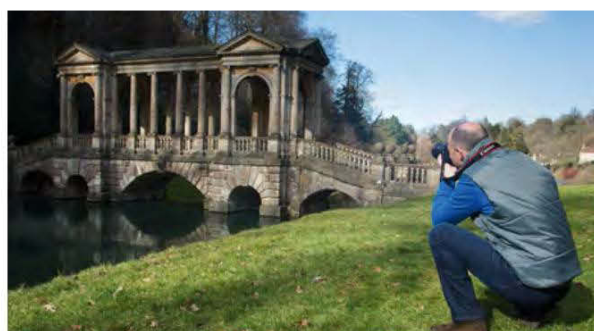
## 01 RIGHT SIZE FOR YOUR LENS

A polarizing filter screws into the front of your lens and you'll need to buy one of the same diameter; our Canon EF 24-105mm f/4L IS USM lens requires a 77mm filter. The diameter is marked on the lens in millimetres and is usually prefixed with a Ø symbol.



## 02 PREVIEW THE EFFECT

A polarizing filter stops light from entering your camera from a specific direction. To see how it works, hold the filter up to your eye against the sky. To increase its effect, simply turn the outer ring on the filter to see how it changes the colours and contrast.



## 03 SHOOT WITH THE SUN AT YOUR SIDE

Polarizers are most effective in bright sunlight and blue skies, and the effect is strongest when the sun is to your side. As the polarizer blocks the light reaching your sensor by approx 1-2 stops, be prepared to bump up your ISO when shooting handheld; or use a tripod.



## 04 FIND THE SWEET-SPOTS

The filter's most pronounced effect is when the sun is at 90 degrees to the camera. A neat trick is to make a gun shape with your hand. Point the 'gun' barrel at the sun, rotate your wrist 90 degrees in either direction, and your thumb will point in the direction to shoot.

**NEXT MONTH**  
**DAYLIGHT**  
**PORTRAITS**

## TOP TIPS FIVE WAYS A POLARIZER CAN BOOST YOUR PICTURES



### 01 CONTRAST IN CLOUDS

As well as increasing the contrast and saturation to transform hazy blue skies into a beautiful deep blue on sunny days, a polarizer will increase the contrast of fluffy clouds, giving them added punch.



### 02 SEE THROUGH WATER

A polarizer can also remove reflections from water, cutting through the glare to the riverbed. The effect is most noticeable with smooth water and when the sun is 30 to 60 degrees above the horizon.



### 03 REDUCE REFLECTIONS

Polarizers can also remove distracting reflections from windows. If you're shooting at the correct angle to the building, you can cut out the reflections and see more clearly through the glass.



### 04 SHINY SURFACES

A polarizer can even kill reflections on shiny subjects, like cars. This effect works best when shooting at 90 degrees to the sun, therefore boosting the skies at the same time.



### 05 BETTER B&W

Polarizers are not just useful for boosting colour – a vibrant polarized landscape shot is perfect for a dramatic black-and-white conversion in Photoshop, turning blue skies black!



## PROJECT 3

# Tilt-shift on the cheap

Detach your lens to create unique, distorted pictures says **Tom Welsh**

### THE MISSION

Shoot without a lens attached to creatively distort the focal plane

**Time needed**  
20 minutes

**Skill level**  
Intermediate

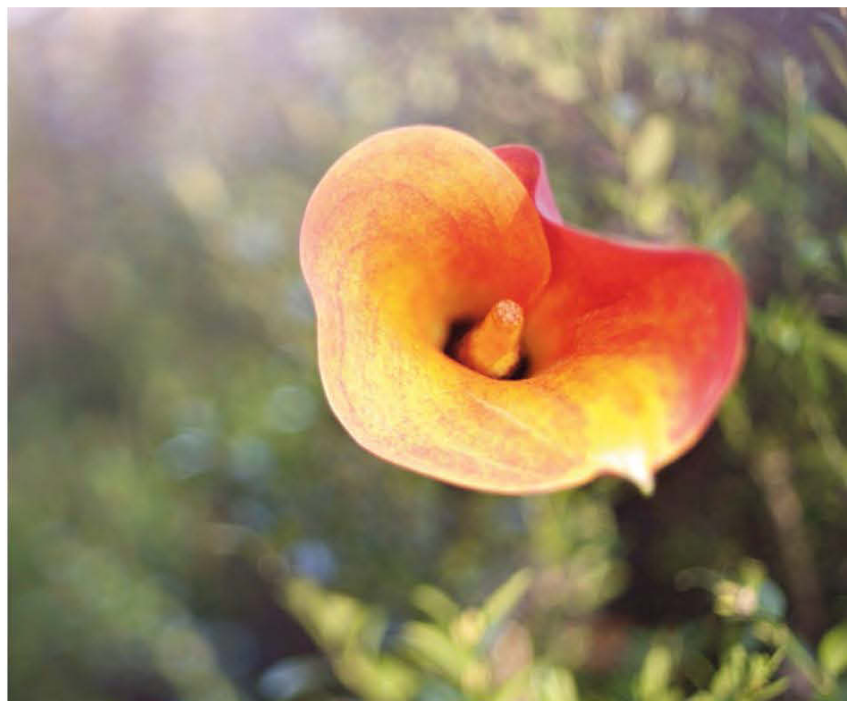
**Kit needed**  
50mm lens  
Tripod

**NEXT MONTH**  
**CREATIVE**  
**COMPOSITION**

**W**ho says you need a lens attached to a camera to take a photo? The art of 'freelensing' can give you some truly intriguing images.

The technique involves detaching the lens and holding it just in front of the camera. This produces some striking effects, in particular letting you alter the plane of focus similar to a tilt-shift lens. You can easily pick up an old, cheap manual lens, and you don't have to worry about the fit since it doesn't need to be attached – we used a Fujica 50mm f/1.9 lens from a 35mm film camera.

Freelensing does take a little practice. Start with very minor movements, as leaving a large gap will allow major light leaks and significant vignetting from the edge of the lens. Manipulate the image by moving the lens away from the camera to create beautiful colour casts and confusing focal points. 📷



### WARNING RISK OF SENSOR DUST



Freelensing leaves your sensor and lens susceptible to dust and everything else out there, which can damage your camera. If you don't want to risk this, there are alternatives, such as a Lensbaby, which is similar in principle. This is a lens with a bendable tube that allows the lens to be twisted without exposing the sensor to the elements.

## STEP BY STEP FREELENSING TECHNIQUE

Make your photos of spring flowers stand out with creative focus and light leaks



### 01 Picking a lens

Although any lens can work for this technique, an old analogue 50mm is ideal. Having a manual focus ring is essential, but a manual aperture ring will also help.



### 02 Setting up

Set up somewhere free of dust and sand, and avoid windy days. Use a tripod and the camera's self-timer to leave you a free hand for moving the lens around.



### 03 Focusing

Set the focal distance slightly further away than your subject then move the lens backwards and forwards and tilt it to position the sweet spot of sharpness.





Focal length: 600mm • Exposure: F/7.1, 1/800 sec • ISO 800

One step beyond.

# SP 150-600mm

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\* The Sony mount does not include the VC image stabilizer (150-600mm F/5-6.3 Di USD)



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## PROJECT 4



BOUNCE FLASH ONLY

BOUNCE FLASH WITH BOUNCE CARD

### THE MISSION

Take evenly-lit portraits indoors, and still get catchlights

**Time needed**  
15 minutes

**Skill level**  
Intermediate

**Kit needed**  
Hotshoe flashgun  
AA batteries  
White card  
Rubber band

# Play the bounce card

Harsh flash can kill the atmosphere at a party, but twisting a flashgun and using its bounce card can give a more natural look. **Chris George** explains

**T**he pull-out bounce card found on many modern flashguns is perfect for achieving bright, flattering shots of people indoors when you need to work quickly.

If you're shooting in low light you generally have three options. You could use a tripod and long exposure, increase the ISO to shoot handheld, or add lighting. If you're taking pictures of party-goers, forget the first option, as your subjects won't keep still! A high ISO can preserve the

atmosphere, but you have to make do with grainy pictures and the widest aperture and slowest shutter speeds possible.

Adding light, by using a flash, is often the most flexible option. You can stay mobile, and you have a greater range of shutter speeds, apertures and ISO settings. The problem is that the harsh, directional light from a built-in flash kills the atmosphere, adds hotspots to faces, and casts ugly shadows behind the subject.

The answer is a hotshoe flash. Rather than point the flash head

at the subject, aim it at the ceiling or a wall for a more diffuse and even quality of light. Most external flashguns have a bounce facility, though some also enable you to turn and tilt the head.

However, even bounce flash can look bland! The light is just too even and eyes lack sparkling 'catchlights'. To add these, use the pull-out bounce card found on many hotshoe guns. This white plastic sheet directs some of the flash output straight at the subject, giving a smidge of direct light and adding mirror-like catchlights. ☛



## STEP BY STEP PERFECT PARTY PORTRAITS

Use a white ceiling and bounce card to turn harsh flash into soft illumination



### 01 CONTROL THE EXPOSURE

Set the flashgun to its E-TTL mode and it will take care of the flash exposure for you. However, it's best to set the camera to Manual exposure mode, using a shutter speed of around 1/60 sec and a wide aperture (f/4, say) to ensure the background is not in focus.



### 02 FIND THE RIGHT SURFACE

Check the colour of the ceiling as this can add a nasty tint to the shot; white is ideal, but off-white will do. We're used to things being lit from above, so ceilings provide natural-looking illumination. You can bounce off a white wall too, as this can look like window light.



### 03 PULL OUT THE CARD

The secret weapon for making bounce flash portraits look alive, with engaging catchlights in your subject's eyes, is a white plastic bounce card. This slots in above the flash and is pulled out with the wide-angle diffuser. Remove both, then push back the diffuser.



### 04 COMPENSATION CULTURE

Look at your results on the back of the camera, checking the histogram for signs of both over- and underexposure. If the flash isn't bright enough, or is too bright, use the flash exposure compensation facility to increase or decrease the light level.

**NEXT MONTH  
CAMERA DRAG**

## ESSENTIAL KIT GET SET FOR BOUNCE FLASH SUCCESS



### 01 FRESH CELLS

Bounce flash needs around four times more power than direct flash. Use fresh batteries and take spares so that the flashgun recycles quickly, and so you can keep up with the pace of the party!



### 02 UP THE ISO

Don't leave the ISO sensitivity set at 100. To prolong your battery life, project the flash further, and speed up recycle times, boost sensor sensitivity up to at least ISO400.



### 03 RAW POWER

Colour balance, contrast and exposure issues are common with flash. Shoot in Raw (or Raw+JPEG) to make it easier to correct problems later on.



### 04 MAKING DO

Not all flashguns have a built-in bounce card to give frontal fill and catchlights. But you can attach a piece of white card to the flash head with a rubber band for exactly the same result.



### 05 WHITE PAPER

When it comes to vertical-format shots, the bounce card will be in the wrong place. Try holding a white paper behind the flash head instead.





## THE MISSION

Get to grips with the core principles of perspective to add impact to your compositions

**Time needed**  
1-2 hours

**Skill level**  
Intermediate

**Kit needed**  
Wide-angle lens  
Standard lens  
Telephoto lens

# Getting things into perspective

Do you know how to create converging lines and control vanishing points? **Hollie Latham** shows you how to use angles to master the third dimension

**Understanding how to exploit perspective in photography is key to capturing interesting compositions. But what does the term actually mean?**

In short, it's the optical effect that makes distant objects appear much smaller than those that are closer to you.

Artists and architects have an understanding of perspective and vanishing points as they have to draw realistic views of the world. However, as photographers we have so many other considerations to take into account before we create a picture that it's easy to

slip into the habit of shooting an interesting subject or scene right from the point where we're standing when it first catches our eye. The end result? A series of pictures that have all been shot with the camera held at eye level, and which have a disappointing lack of impact.

By getting to grips with some of the core principles of perspective and applying them, it can help you understand how you can change the visual relationship between elements in your composition.

While it's tricky to manipulate perspective 'in camera' in the way a draftsman might with pen and

paper, there are aspects that the photographer can control through the choice of lens, angle-of-view and, crucially, how far you are from the subject when you take the picture.

In this project we're going to explore the basic principles of perspective, and will be covering how distance and focal length affect it. We'll also explain what linear perspective and vanishing points are, and how you can use them to improve your images.

So it's time to move your feet and see how experimenting with perspective can help you capture pictures that pack some punch! 📸



# HOW TO ADD DEPTH TO YOUR SCENES

Make the most of vanishing points to draw viewers into your pictures

**UNDERSTANDING THE** principles of linear perspective and how to make use of vanishing points in your photos can help you create far more impact, whether it's to emphasize the large scale of a scene or subject, or to add a sense of

depth and drama. In layman's terms, a vanishing point is the point at which two parallel lines appear to converge. As a photographer, capturing a vanishing point can make for a strong composition that draws the eye in. The most common

examples of vanishing points are the obvious straight lines formed by long roads and railway tracks. However, vanishing points aren't always obvious in a scene, so knowing how to emphasize one when you spot it is vital.

## QUICK TIP!

You can have more than one vanishing point – hunt out viewpoints with two sets of parallel lines that converge towards two vanishing points



### 01 EMPHASISE THE SCALE

Use a wide-angle lens from close distance to exaggerate the angle of the converging lines. With towers and skyscrapers, stand at the base and point the lens straight up.



### 02 LEADING LINES

For less obvious converging lines, such as paths, get down low and frame the scene so that the leading lines start near or in the corners of the frame to emphasise them.



### 03 INCLUDE VANISHING POINTS

Make sure you include the vanishing point in your scene for more dramatic results. Cutting through the converging verticals before they meet loses impact.

## HOW TO GIVE YOUR SHOTS SOME PERSPECTIVE



### 01 DIMINISHING SIZE

This is a subset of linear perspective, where similar-sized subjects appear much smaller depending on how far they are from the camera.



### 02 OVERLAPPING FORMS

A useful depth trick, where distant objects are partially obscured by nearer ones. This effect is easy to achieve using careful framing.



### 03 AERIAL PERSPECTIVE

Parts of the landscape that are more distant appear paler and bluer – an optical phenomenon that can be exaggerated by the use of a telephoto lens.



### 04 DIFFERENTIAL FOCUS

By limiting depth of field, we can make the background sharp and the foreground blurred (or vice versa) to add an effective sense of depth to pictures.



## PROJECT 5

# STEP BY STEP ALTER THE PERSPECTIVE

Try this easy exercise to see the effect that focal length and distance have on your pictures

## FOCAL LENGTH EXPLAINED

A common misconception is that lenses alter the perspective in your images, with telephotos compressing perspective and wide angles exaggerating it, but this is not strictly true. Perspective is actually determined by the relative distance between you and the subject. The focal length you chose simply determines how much or how little of the subject you include in the image.



### 01 RANGE OF FOCAL LENGTHS

For this exercise you'll need at least two subjects, one in the foreground and one in the background, with plenty of space in front of them that will allow you to shoot from three distances. You'll also need a range of focal lengths, including wide-angle (16mm) and telephoto (100mm+).



### 02 EXAGGERATE PERSPECTIVE

To make the foreground subject appear much larger and the background appear much smaller, use a wide-angle lens and move closer to the foreground subject. This works because you are changing the relative distances between you and the different parts of the scene.



### 03 NORMAL PERSPECTIVE

To get a 'normal' perspective, find a view where both subjects fill your field of vision without having to turn your head. To frame most subjects at a distance that will give you this perspective, use a focal length of 35-50mm on a full-frame DSLR, or 24-35mm on a APS-C one.



### 04 COMPRESS PERSPECTIVE

To make the foreground and background appear closer together, shoot from further away. The greater the distance, the more 'compressed' the perspective will be. Being further away requires a longer lens to fill the frame; the focal length you need will depend on the distance.

**NEXT MONTH**  
**HOW TO LIGHT**  
**STILL LIFE**

# TECHNIQUE GOING THE DISTANCE

Don't settle for the first viewpoint you find – change your shooting position to get a different look



### Shoot close to your subject

The closer you are to the foreground subject, the wider the lens you'll need to get it all in. The focal length you'll need to use will depend on the size of the foreground subject and how close you are to it.



### Shoot from distance

Your subjects will appear smaller the further away you are, so you need to use a longer focal length to fill the frame. The greater the distance, the longer the focal length required to fill the frame in the same way.



## STEP BY STEP ARCHITECTURAL ACCURACY

Here's how architectural photographers avoid converging verticals in their shots



### 01 KEYSTONING

Stand at the bottom of a tall building and point your camera up, and the converging lines will make the building appear to be leaning backwards. This is called 'keystoning', and while it is a great way to add a sense of scale, some photographers prefer their shots to look more natural.



### 02 SHOOT SQUARE ON

To avoid the keystoning effect you'll need to shoot square on (so not angling your camera up or down). To do this, either find an elevated viewpoint (such as from the top of a nearby building), or shoot from a distance with a long telephoto lens (so there is no need to tilt the camera up).



### 03 TILT-SHIFT

An architectural photographer will use a tilt-shift lens to skew the perspective and correct converging lines without having to move back. Alternatively, Photoshop's Transform tools can do a good job of reducing or removing the keystoning effect, but will slightly crop images too.

## CREATIVE IDEA FORCED PERSPECTIVE

Perspective is a serious business, but here's a fun way to play with it for quirky results

**YOU CAN** experiment with the ideas of perspective of scale and diminishing size to create some fun and quirky images. Here, we're playing on these principles so it looks like our model Elle is holding a smaller model, Siân, in her hand.

The technique isn't too taxing: you simply position the subjects in the same light, one in the foreground and one in the background, and carefully align them. You'll need to use a narrow aperture to give enough depth of field to make both subjects appear sharp. As a result, you may need to bump up the ISO to give a fast-enough shutter speed when shooting without a tripod.





## PHOTOSHOP ELEMENTS

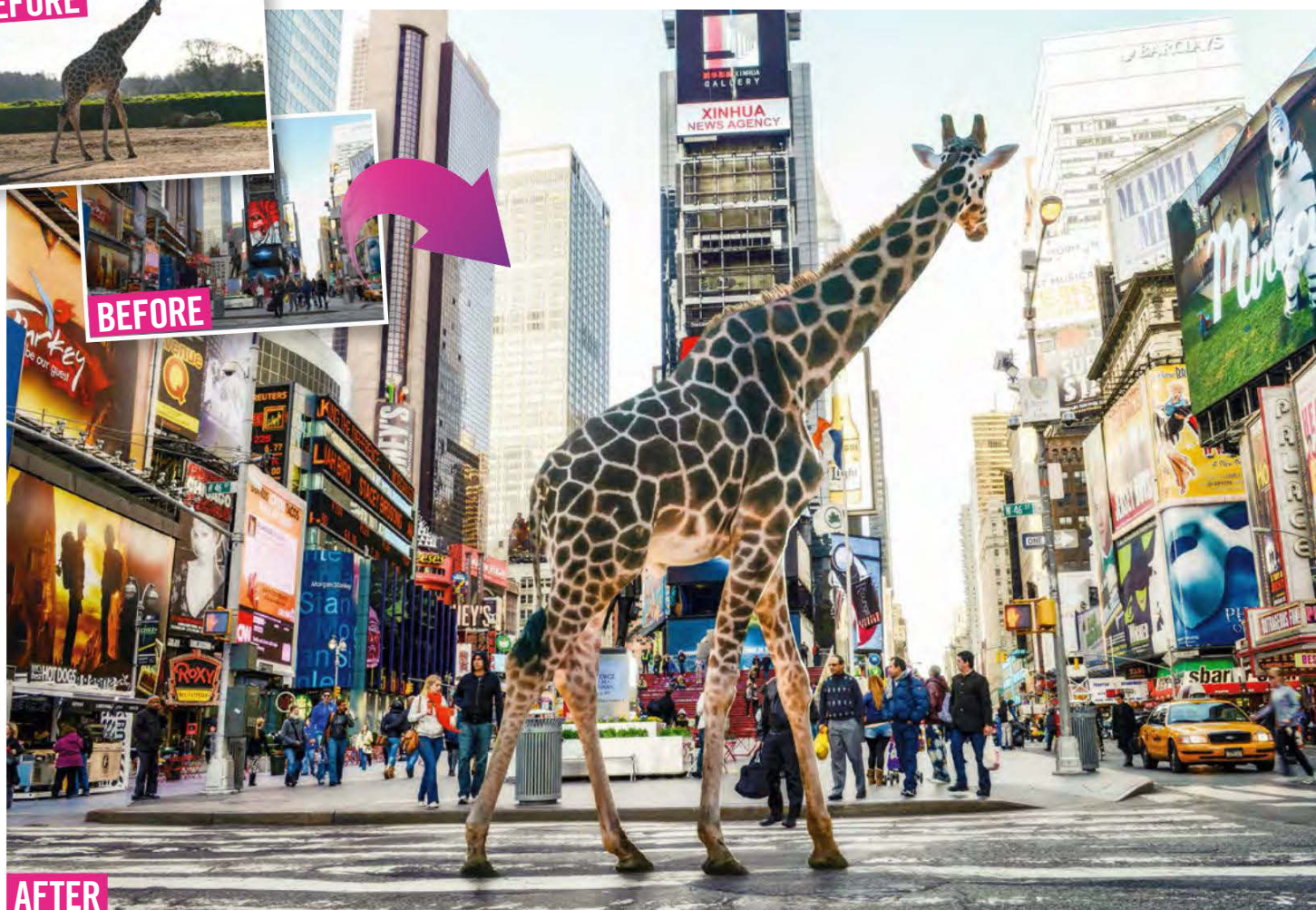
BEFORE



BEFORE



AFTER



### THE MISSION

Combine parts of two photos using the Photomerge Compose tool

**Time needed**  
30 minutes

**Skill level**  
Advanced

**Kit needed**  
Photoshop Elements 13

# The perfect blend

Make an impressive composite image using Photoshop Elements' new Photomerge Compose feature. **James Paterson** shows you how

**T**he Photomerge Compose command available in Elements 13 provides a guided walkthrough that explains each stage of the photo-merging process.

To begin with, we use Quick Selection to isolate the object we want to extract from its original background. Once the selection is done, the command places the object on another layer, allowing you to position it exactly where you'd like. It also offers a feature to Auto Match the tones, but don't bother using it. Apart from the

fact that it doesn't do a very good job of matching tones, it also pixelates your cut-out image and severely lowers the quality.

Luckily, colour matching is easily done once Photomerge Compose is complete, and other tools, such as Levels, offer greater control anyhow. Once the images are combined, it can help to apply additional effects to everything, so that the different elements look like they belong together. Here we've done this by saving a copy of the image, then taking it into the Adobe Camera Raw plug-in to create an HDR-like effect.

The success of composites like this relies heavily on the lighting in the two images. If the light is from the side in one image, and the light is from the front in the other, then it will be hard to combine the two convincingly.

In our two starting images, the lightest part of each scene is in the background, so the angle of light is coming from behind. This makes it much easier to blend the two images into one convincing whole. So, when shooting or choosing images for your own composites, it really does pay to try and match the lighting. ♦

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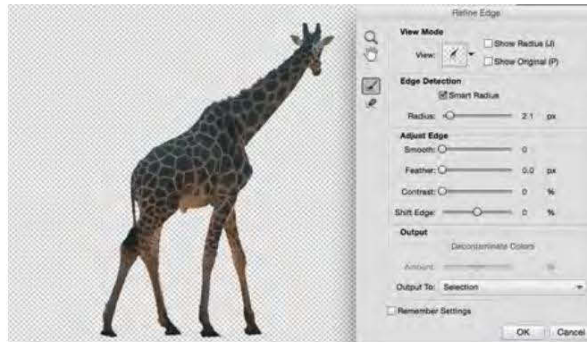
## STEP BY STEP CONVINCING COMPOSITES

Use Elements' selection tools and the Camera Raw interface to create an authentic look



### 01 Start Photomerge Compose

Open the images and go to Enhance>Photomerge>Photomerge Compose. Drag the image with the area you want to extract from the Photo Bin into the window. Paint over the subject, using the Quick Selection brush to select the area you want to extract.



### 02 Refine the edges

Go to the Advanced Edge Refinement section and click Refine Edge. Hit F to cycle View modes. Use the Radius slider to increase the area of refinement on edges, and check Smart Radius. We can also paint a radius along the edges using the Refine Radius tool.



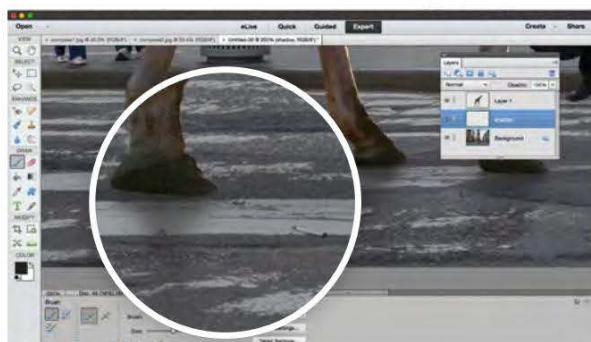
### 03 Reveal and hide

Happy with the selection? Click OK, then Next. The selection will be extracted to the other image. Drag the bounding box into position, zoom in close and check the edges. If parts of the subject are missing, click the Reveal button and paint to bring them back.



### 04 Match the tones with Levels

Click Next, and then click Done (see Quick Tip). Go to the Layers panel (Window>Layers) and highlight the top layer. Go to Enhance>Adjust Lighting>Levels. Use the three sliders to try to match the brightness and contrast with the background scene.



### 05 Paint soft shadows

In Expert mode, highlight the 'Background' layer in the Layers panel and click the New Layer icon. Grab the Brush tool. Set colour to black and brush opacity to 30% and paint under the feet to add a soft shadow. Now we'll add a tonal effect in Adobe Camera Raw.



### 06 Experiment with effects

Go to File>Save and save it as a JPEG, then go to File>Open in Camera Raw. Adjust the overall exposure and colour then click Open Image and use the Dodge and Burn tools to lighten or darken areas. Finally, go to Quick mode and experiment with the Effects panel.

### QUICK TIP!

In the final section of Photomerge Compose, you're offered tools to Auto Match the colours, but skip this and click Done

**NEXT MONTH**  
**COLOUR**  
**BALANCE**





## THE MISSION

Transform a portrait with Photoshop's Liquify and Warp tools to turn an adult into a grumpy child

**Time needed**  
30 minutes

**Skill level**  
Intermediate

**Kit needed**  
Photoshop CS5 or above

# Rediscover your inner child

**James Paterson** shows you how to transform a person into a childlike caricature with an array of pixel-bending Photoshop tools


**P**hotoshop offers a bag of tricks that makes pulling portraits into new shapes all kinds of fun. In this tutorial, we'll take inspiration from Christian Girotto's surreal series of portraits and show you how to turn an adult into a grumpy child.

To reverse the aging process, it's worth thinking about the differences between a child and adult face. In general, children have smaller noses, less defined

cheeks, chubbier features, bigger eyes and flatter eyebrows. We can make all these alterations with the amazing Liquify filter, which enables you to push, pull and morph pixels. Once done, we'll finish off by removing tell-tale signs of age, like wrinkles and blemishes, then add rosy cheeks.

We've used two portraits, taken moments apart. For the second shot we moved the camera slightly closer to the head – the slight change in perspective makes the oversized head look more realistic

– but you can still get good results from a single portrait.

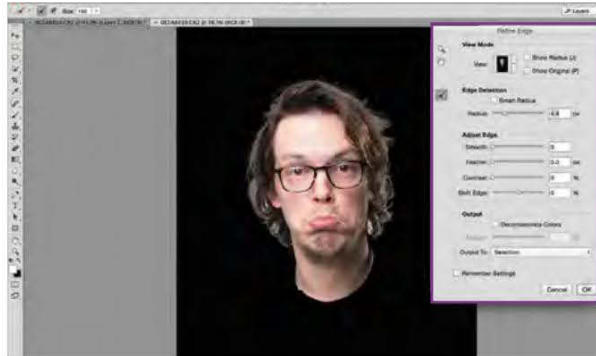
Whether you want to create a surreal portrait like this, or just make a person's face look younger and fresher, the way you light the face plays a big part. Large, frontal lighting fills out the shadows and lines on a face, softening wrinkles, crows feet and eye bags. We positioned a softbox directly above the camera, with a reflector held below the chin. A second 'edge' light came from behind the subject to the right. 

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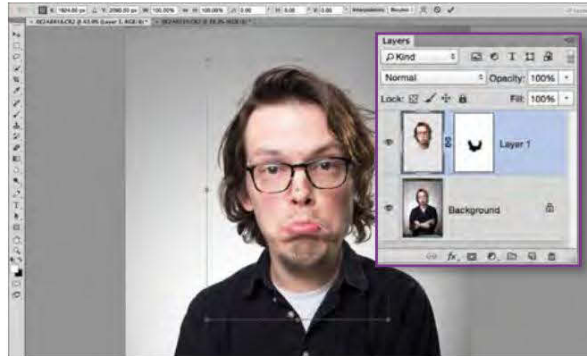
# STEP BY STEP ROLL BACK THE YEARS

How to turn wizened adult features into the prettiest little baby face...



## 01 OFF WITH HIS HEAD!

Open face02, grab the Quick Selection Brush and paint over the head and neck (hold ALT to subtract if it goes wrong). Click the Refine Edge button at the top. Check Smart Radius, set Radius to about 4 then paint over the gaps in the hair to improve the edges. Hit OK.



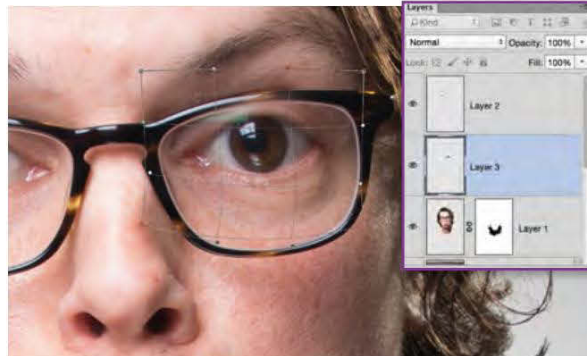
## 02 BLEND THE NECK

Press Ctrl+C to copy then Ctrl+V to paste onto face01. Position the head with the Move tool (hit Ctrl+T to resize it). Click Add Mask in the Layers panel. Grab the Brush tool, set to black, then paint to blend the edges of the neck with the layer below.



## 03 CHANGE THE BODY SHAPE

Duplicate the 'background' layer with Ctrl+J. Right-click the layer and 'Convert to Smart Object'. Next, go to Filter>Liquify. Use the Forward Warp tool and a large brush tip to reshape the body. Slope the shoulders, squash the chest and shrink the arms.



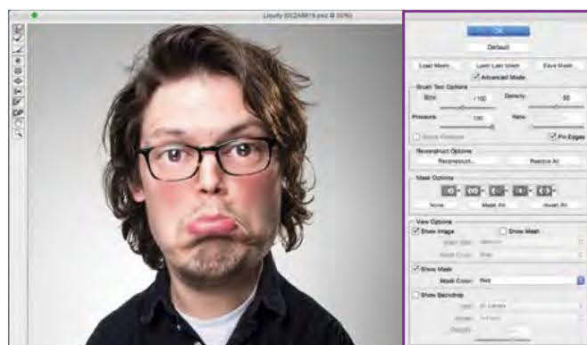
## 04 ENLARGE THE EYES

Highlight the head layer and grab the Lasso tool. Set Feather to 10px, drag a selection around an eye, hit Ctrl+J to copy to a new layer. Press Ctrl+T, use the bounding box to enlarge it. Right-click, choose Warp, then reshape the eye. Hit Enter. Repeat for other eye.



## 05 ADD ROSY CHEEKS

Make a new layer, grab the Brush tool, choose a large soft brush, set colour to red and dab a large spot on each cheek. Lower the layer opacity until it looks right. Add a new layer. Grab the Spot Healing Brush, check Sample All Layers, then remove blemishes and lines.



## 06 FINAL LIQUIFY

Press Ctrl+Shift+Alt+E to merge a copy of all the layers then convert it to a Smart Object. Go to Filter>Liquify and use the Forward Warp and Pucker tools to fine-tune the shape of the face and body. Puff out the cheeks, shrink the nose and lower the hairline.

## QUICK TIP!

Add freckles using the Rough Ink brush from the Wet Media set, choose a brown colour and paint on a new layer at 60% opacity

## COLOUR A BACKDROP

If you shoot a portrait against a simple grey background like this, it's easy to change the colour in Photoshop. Use the Magic Wand or Quick Selection tool to select the area, and use Refine Edge to improve the selection. Then add a Hue/Saturation adjustment layer. Check 'Colorize' then use the Hue and Saturation sliders to choose a colour. If you want to tone the colour down, simply lower the Hue/Saturation layer's opacity.

**NEXT MONTH**  
**B&W INFRARED**  
**IMAGE EFFECTS**





**AFTER**

**BEFORE**

## THE MISSION

Learn how to import images into Lightroom then begin enhancing them with a few essential tools

**Time needed**  
15 minutes

**Skill level**  
Beginner

**Kit needed**  
Lightroom 5

# Get started with Lightroom

If you're making the transition to using Lightroom, then discover how to get up and running in minutes with **James Paterson's** quick start guide

**L**ightroom has many useful tools for editing Raw files and keeping on top of your growing photo collection. But if you want to get up and running quickly, there are just a handful of things to grasp.

The Lightroom experience begins with importing a set of images. This can seem a little confusing at first, why would you need to 'import' your photos? The explanation goes to the heart of the way Lightroom works. The program doesn't actually alter the pixels in your images, so unlike programs like Photoshop there's

no need to 'open' files. Instead, Lightroom simply changes the way the images are displayed within its interface. All you're really doing when you 'Import' images is telling Lightroom exactly where those images are located on your hard drive.

Think of Lightroom as a directory: it remembers where your photos are, and it remembers how you'd like them to look. That data is stored in what Lightroom calls a Catalog. Don't be confused into thinking the Catalog is a place where images are stored, as it's simply a record of where your images are located on your drive,

and what changes you've made to them using Lightroom's array of tools. Say, for example, you increase Exposure by +0.50. This doesn't lighten the original image, it just changes the way Lightroom shows you the image. The change in exposure is stored as a tiny bit of data alongside the image's location within the Catalog.

Once you're happy with the way an image or set of images looks, only then do you get to the point where you save a new version of the image, by exporting it in a common file format like JPEG or TIFF. We'll take you through the process here. 📁

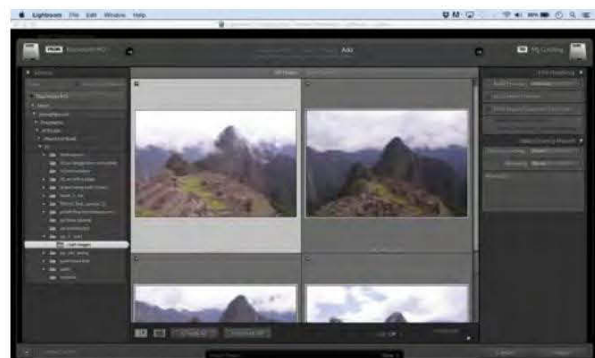
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LIGHTROOM

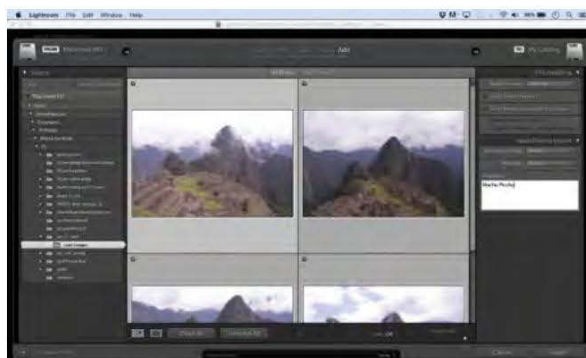
# STEP BY STEP IMPORT, EDIT, EXPORT...

Follow these six easy steps to get up to speed with Lightroom 5's essential features



## 01 BEGIN THE IMPORT

Copy a fresh batch of images to your hard drive. Open Lightroom then click on the Library in the list of modules at the top of the interface. Click Import, then use the Source section on the right to find your folder of images. Click Check All at the bottom.



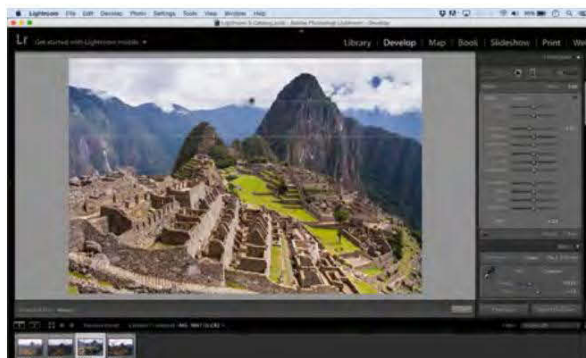
## 02 ADD KEYWORDS

Take a couple of seconds to keyword the images – it'll pay in the long run as your library grows. Click on an image then hold Ctrl and click to select others, or press Ctrl+A to select all. Type a keyword in the box on the right then hit Enter. Next, click Import.



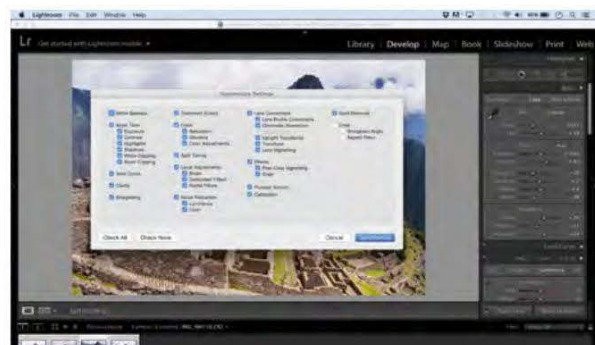
## 03 ENHANCE THE IMAGE

Press Ctrl+A to select all the imported images, then click Develop in the list of modules. Choose an image in the film strip at the bottom, then edit the image. The Basic panel is a good place to start. Here we increased Exposure, Clarity and Saturation.



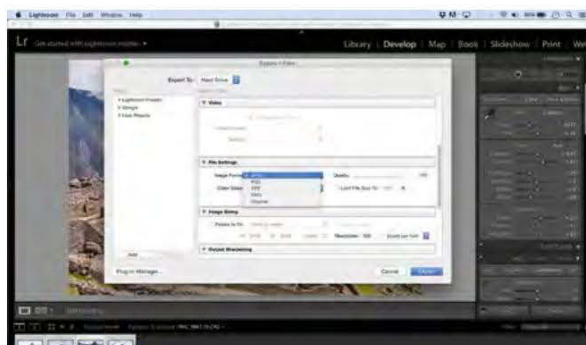
## 04 CROP AND ADJUST

Use the top-right toolbar to crop and apply selective adjustments. Notice how each tool opens a set of tool options. Use the Crop tool to tighten up a shot. To darken a sky, grab the Graduated Filter, dial in -0.80 Exposure and drag down from the sky to the land.



## 05 SYNC THE CHANGES

You can quickly apply the same treatment to similar images. Go to the film strip at the bottom and press Ctrl+A, then click Sync. In the Synchronize settings, click Check All, then uncheck Crop (unless you want to apply the crop too) and hit Synchronize.



## 06 EXPORT AS JPEGs

You can print your finished images directly through Lightroom's Print Module, or export in a common format like JPEG. To Export, select the images you want then go to File>Export. Choose a save location, set Image Format>JPEG, then hit Export.

## THE ADOBE LIGHTROOM WORKFLOW

Lightroom offers a way of working that requires a slight shift in mindset from the open-edit-save workflow many of us are used to. By contrast, Lightroom goes: Import image- edit image- export image. The clever part is, the editing stage is always non-destructive and you never have to save multiple copies of your image. You can even create versions of the same image in Lightroom without duplicating the original file by using Virtual Copies, so you save on hard drive space.

## QUICK TIP!

Use the Import dialog to copy files from a memory card to a hard drive and Import into Lightroom at the same time

**NEXT MONTH**  
**THE DEVELOP**  
**MODULE**







# ART WOLFE

*Art Wolfe is one of the world's greatest nature and travel photographers and has had an extraordinary 40-year career. At 63, he's working harder than ever and says the best is still to come. He talks to David Clark*

**A**RT WOLFE is not the sort of professional Canon photographer who's content to look back nostalgically on a lifetime of achievement, sell prints of his iconic images and sedately rest on his laurels. Endlessly active, creative and articulate, he's always moving on to the next project and expanding the boundaries of his work.

His journey into photography began five decades ago and he's been a Canon DSLR user for the past 12 years. I caught up with Art on one of the short breaks in his relentless schedule of international travel. I was keen to discover what drives him, and how, after four decades, he still shoots so many great pictures and remains at the top of his game. I found that the seeds of his love of the natural world, inextricably linked to his need to express it in photographs, took root from an early age growing up in America...

## **When did your passion for nature first develop?**

Some of my earliest memories are about going into the wooded ravines not too far

### **01 AFRICAN ELEPHANTS, BOTSWANA**

Art set up his 5D Mk II beside a pool of water and shot this image from close to the elephants using a wide-angle lens

Lens	Canon EF 16-35mm f/2.8L II USM
Exposure	1/400 sec, f/9, ISO400



**02 GENTOO PENGUIN, ANTARCTICA**  
Art sees this image of a solitary penguin on a small iceberg as a metaphor for the disappearing ice and climate change

**Lens** Canon EF 16-35mm f/2.8L II USM

**Exposure** 1/400 sec, f/13, ISO400

**03 WATER BEARERS, RAJASTHAN'S THAR DESERT, INDIA**  
He used a 1Ds Mk II to shoot the women silhouetted on the crest of a sand dune

**Lens** Canon EF 24-70mm f/2.8L USM

**Exposure** 1/160 sec, f/18, ISO400

**04 HUANGSHAN, ANHUI PROVINCE, CHINA**  
The jagged rock towers of Huangshan were shot with a 1Ds Mk III from an elevated view, emphasising the clouds

**Lens** Canon EF 24-70mm f/2.8L USM + 1.4x Extender

**Exposure** 1/30 sec, f/13, ISO100



from where I grew up in Seattle. By the time I was seven years old, I had little field guides to birds, mammals and plants and I studied and memorised them. So in many ways I was a naturalist before I'd ever heard of the word. What's really interesting about that is, whatever I learned, I retained. So I've still got that knowledge ingrained in my brain.

**How old were you when you first got hooked by photography and what triggered it?**

I was in my late teens and I started mountain climbing, and I took a camera along to document the climbs. By that point I was already studying art at the University of Washington, and whatever I was learning in art school I was applying to my photographic compositions. I think it was just a natural shift from an interest in painting to photography.

**How important was your background as a painter to your photography?**

It was incredibly important. Whenever I teach, I always draw upon my sense of aesthetic. I weave my knowledge of current and historical painters into of the curriculum that I teach.

**// I was in my teens and I started mountain climbing, and I took a camera along to document it all... //**



My experience of painting is integrated completely into what I do and how I see it.

**Were there any photographers who inspired you when you were starting out?**

Yes, definitely Ernst Haas. At a time when other famous photographers were shooting on large-format 4x5 cameras, he took the 35mm format and shot fresh, rapid-fire images. He experimented with colour and motion, for example in his studies of bullfights, and did a great job. He inspired not only me, but an entire generation of photographers.

**What was your first break as a budding photographer?**

In the late '70s I met Dr. Allan Lobb, who

was a director of a very large hospital here in the Northwest, and he had a private collection of historic baskets collected from Native American tribes, everywhere from the Columbia River to Alaska. I had knowledge of the baskets and Allan had the desire to do a book, so he asked me to take the photos for it. *Indian Baskets of the Northwest Coast* was the first book I ever did. It really was a great break for me in my career.

**What was your first camera?**

It was an old 35mm Konica, which my parents gave me for Christmas when I was in my late teens. I used it for much of my work in the first couple of years. However, I also shot on a large-format 4x5 Speed Graphic. It was also given



**// I prefer to up the ISO to 2500 or 4000 with the 1D X and get a better depth of field //**

**What's the most unusual thing in your travel bag?**

I always take a French press and a pound of coffee beans or ground coffee. Caffeine does the trick for me in the morning. It's the perfect drug for me and it fortifies my brain, ready to go out shooting.

**Do you often shoot handheld?**

More now than ever before, due to the high ISO speeds available now on modern Canon DSLRs. In the past I religiously used tripods, but I'm not a glutton for punishment and there are a lot of times where the speed and spontaneity of handholding serves you well. So the tripod still goes on my trips, but not having to use it enables me to react fast, especially when I'm photographing cultures and tribes.

**f/2.8 or f/8?**

It really depends. If I'm trying to shoot shallow focus and make an artistic statement, I'll use f/2.8. In most situations I'm shooting at around f/11. I prefer to bounce up the ISO to 2500 or 4000 with the 1D X and get a better depth of field. I can pretty much always take down the noise through using Adobe Lightroom.

**Is Lightroom your preferred processing software?**

Yeah, that's for me personally. If it's an image that would go into a book or a bigger project, then the noise reduction and other processing steps will go through Photoshop. I have a multimedia producer in my office who does that work.

**When you're on assignment, how many gigabytes of Raw images do you shoot in a week?**

I don't live in the world of gigabytes, but on a really good day, I'll probably take about 2,000 images. So figure that in Raw, and multiply that by a five-day trip, and you'll get the answer.

**How much of the year do you spend travelling?**

At this point I think I'm travelling more now than I've ever done before, and I'd say I'm gone for two-thirds of the year, easily. I think my top colleagues would

to me by my father, who had used it as a US Navy photographer in the South Pacific in World War II.

**And what was the first digital camera you purchased?**

I bought a Canon EOS-1Ds in 2003. This was the camera that made many of my colleagues say that digital had arrived to the point where it was the equal of film, and that's when I switched to digital.

**Which Canon DSLR bodies do you currently use?**

I've got an EOS-1D X, which is a great camera. I've also got a 5D Mark III. I'm leaving for India in a week's time and those are the only two full-frame camera bodies that will be in my arsenal.

**What are the other key contents of your camera bag, such as favourite lenses, that you prefer to use?**

It depends on what subjects I'm shooting. I have a Canon EF 70-200mm f/4L and a Canon EF 70-200mm f/2.8L. The f/2.8 is heavier, but it's faster so I'll take it if I'm shooting wildlife. The other main lens I use is the EF 24-70mm f/2.8L. I think that's a great lens. Occasionally I take a EF 16-35mm f/2.8L wide-angle zoom. If I'm going to a place that has a lot of wildlife, I take the EF 200-400mm f/4L, which I also love. It's expensive, but it's a really great lens. Occasionally I'll have the 2x converter in the bag as well, but rarely do I use it because the EF 200-400mm f/4L has a built-in 1.4x extender anyway.

04





**05 CAMEL TRAIN, SAHARA DESERT, MOROCCO**  
Art recalls that this romantic scene was shot while his fellow plane passengers were filling sick bags around him!

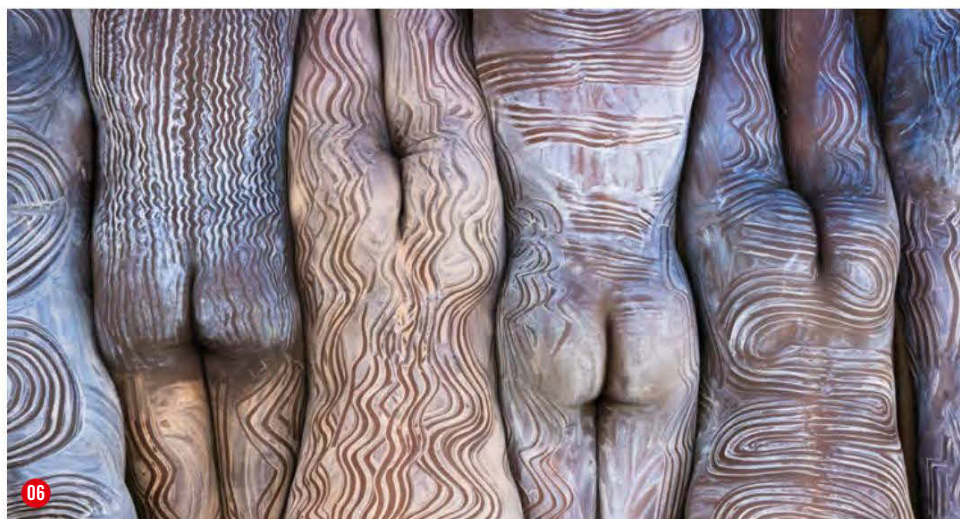
**Lens** Canon EF 70-200mm f/2.8L IS USM  
**Exposure** 1/1250 sec, f/2.8, ISO400

**06 SURMA TRIBESMEN, OMO RIVER VALLEY, ETHIOPIA**  
Art was 'channeling Picasso' when shooting this abstract image from above

**Lens** Canon EF 70-200mm f/2.8L IS USM  
**Exposure** 1/80 sec, f/9, ISO200

**07 FISHERMEN, INLE LAKE, MYANMAR**  
He used a 5D Mk III from a low angle to shoot these fishermen against the sun

**Lens** Canon EF 24-105mm f/4L IS USM  
**Exposure** 1/250 sec, f/22, ISO500



**// Nobody travels as much as I do and nobody really wants to. It's not a lifestyle most people would embrace... //**

concur that nobody travels as much as I do and nobody really wants to travel as much as I do. It's not a lifestyle that most people would embrace. A lot of people think they would, but in reality they wouldn't. They would want to be in their own home and their own bed more often than I am. I'm kind of addicted to stimulation and I get that through travel.

**Do you have a favourite place you've photographed?**

Everywhere I go I like, but if I had to pick one for wildlife and landscape I'd say

South Georgia Island. If I was choosing one for shooting culture, well, every place is interesting to me. It's hard for me to pick one place in particular.

**With your busy, nomadic lifestyle, how do you relax?**

I don't relax. What do you mean, "how do you relax?" [laughs] Actually, the creation of new images gives me energy rather than saps it. However, I don't shoot many pictures when I'm not working. Some photographers, like Jay Maisel, go everywhere with a camera. That's not





07

true of me. If I'm in Seattle at home I rarely have a camera in my hand.

**Your book, *Earth Is My Witness*, includes images from a number of projects. Does one stand out as particularly rewarding?**

They all were, quite honestly. Whenever I had a book project, whether on cultures or wildlife or landscapes, I just dived in with both feet and that became my primary focus for the period of time I worked on it. *Tribes* was an important book as it really opened my eyes to what the world was like in remote areas, but other books were equally intriguing and energising for me. I learned from – and draw inspiration from – all of these projects moving forward.

**How much of your new photography is in the book?**

A lot of it has been shot during the past three or four years. Once I had agreed to do the book, I looked back at so many of my iconic images and, since they were shot on film, they look dated. Therefore I went back to locations where I'd taken those images, not trying to copy those photos, but just putting myself in an environment in which I knew I could generate a lot of new digital images.

**So it would be wrong to view the book as a career retrospective...**

Retrospectives generally look back over one's entire career and in my mind, although I'm 63, I know I'll be active for another 20 years. I believe the best work is yet to come. So I look at *Earth Is My Witness* as 'the best work to date' – a mid-career look back.

**What drives you to explore a range of different genres?**

I have an incurable curiosity about the Earth, as well as a lot of drive. I don't feel I've done all the things I've wanted to do. I remember being in art school and having instructors saying, "Never be too satisfied with what you've done. Always try to achieve something better." That has been my unspoken mantra over the years. I've never sat back in a chair, folded my

**Although I'm 63, I know I'll be active for another 20 years. I believe the best work is yet to come...**

## STORY BEHIND THE SHOT



### Spirit Horse

Art Wolfe talks about his most commercially successful picture

"My current best-seller is a photo titled 'Spirit Horse' and I shot it exclusively for prints. It's a pure white Andalusian horse, and I photographed her in front of a dark barn entrance. I used a leaf blower underneath her to blow her mane straight up. I knew it would be successful, because it's very graphic. I definitely consciously went after dollars on that one and I have been rewarded. It sells often in the Rotella Galleries in New York and Las Vegas."



**08 EMPEROR PENGUINS, ANTARCTICA**  
Art used a Canon F3 to photograph two adult penguins with their chick at 2:30am during the Arctic summer

Lens Canon EF 70-200mm f/2.8

Exposure 1/60 sec, f/8, Fujichrome Velvia film

**09 NIGHT FISHERMEN, GUANGXI, CHINA**  
These traditional fishermen train cormorants to dive and catch fish attracted by the light of the lanterns

Lens Canon EF 16-35mm f/2.8L USM

Exposure 0.3 sec, f/8, ISO400

**10 KOYASAN SHINGON TEMPLE, MOUNT KOYA, JAPAN**  
Art photographed these snow-covered branches in front of a bright orange-coloured Japanese temple wall

Lens Canon EF 70-200mm f/4L IS USM

Exposure 1/10 sec, f/16, ISO125

**// I've seen every place and every animal I've ever wanted to see. I've travelled far and it's been a great life //**

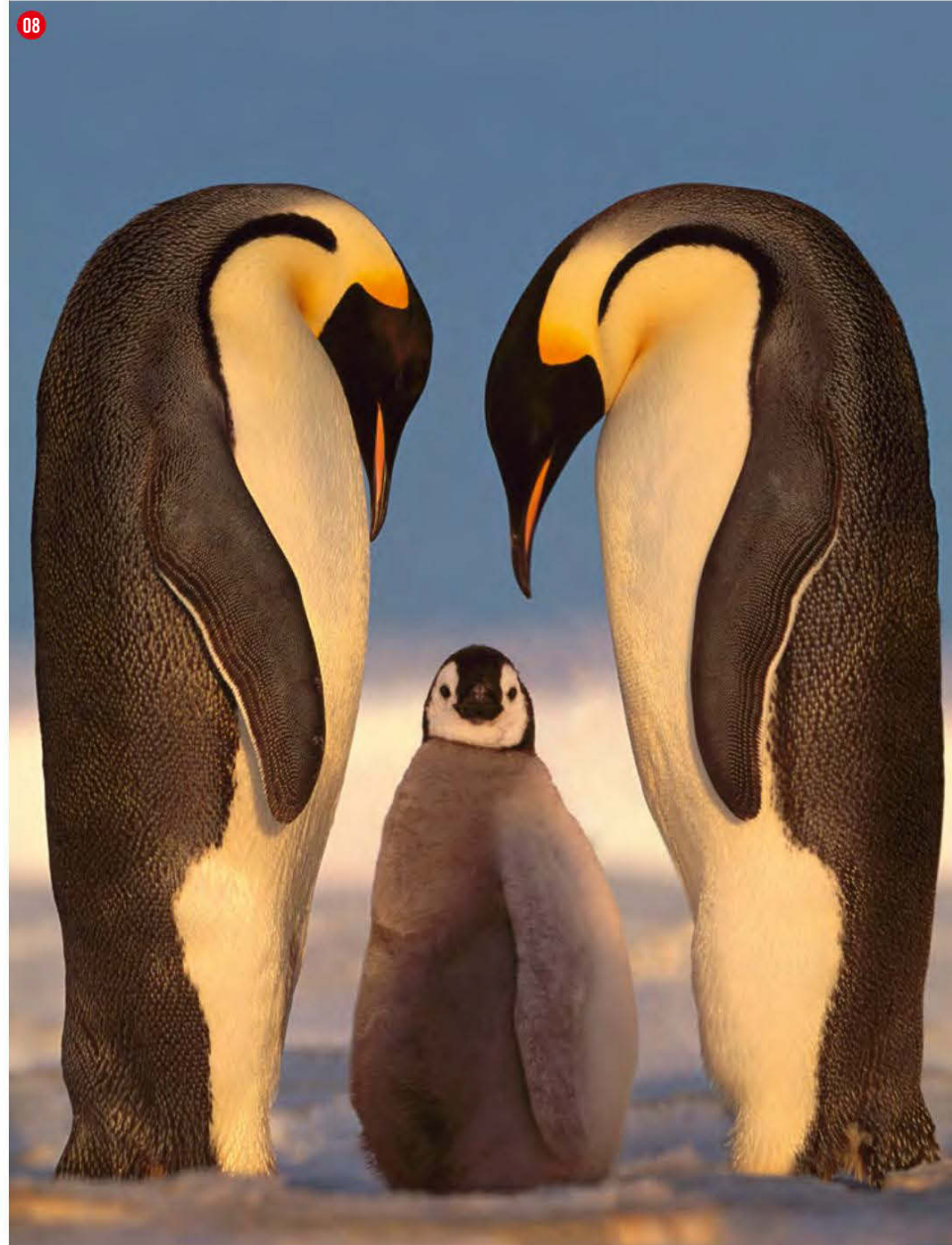
arms and said, "Yeah, I've done it." I've always had a sense that there's something better to do. It's not that I'm completely unsatisfied. I can acknowledge that this project was rewarding, but I've never felt like I've achieved everything I want. I will keep going until I drop.

## Could you photograph a wedding if you had to?

You know, I did shoot a wedding at one point when I was at art school. One day I was driving down the freeway in my parents' old car. They both became wedding photographers, so 'Wolfe Wedding Photography' was painted on the side. Somebody was honking at me so I rolled down the window and a couple from Canada said, "We're eloping in an hour, could you shoot our wedding?" I said, "25 dollars," and they said, "Okay!" I drove home, quickly got a camera, went to the courthouse and photographed their wedding. That's the only one I've ever done.

## What's been your greatest moment as a photographer?

It has been a lifetime of great memories.



A few years ago, before my father passed away at the age of 94, I remember going to see him after coming back from yet another trip. He looked worried. I said, "Are you worrying about me?" and he kinda nodded. I said, "Look, I've lived a great life. I could die virtually tomorrow and be happy. I've seen every place and every charismatic animal I've ever wanted to see. I've travelled far and frequent and it's been a great life." Looking back, there isn't one single moment that stands out above the others.

## And the worst moment?

My entire trip to Russia in the winter of 1990. I was invited to photograph Siberia by a Russian department of tourism, with the idea that I would encourage more visitors. Unfortunately, it was a miserable

trip. People were unhappy, food was scarce, I was travelling by myself and my Russian handlers tried to get me drunk on vodka every night – and succeeded more times than not. I hated it. I know it's become much more of a great place since, but my memory of Russia and Siberia was so negative I've never gone back.

## What advice you can offer aspiring nature photographers?

It's a cliché but it's true: if you've got a passion or a desire to do something, I say "do it", and if you fail at least you've tried. When it comes to photography, people have dreams, and if you dash those dreams, you could lose the next great photographer. So I usually encourage people, but I also tell them it's a complete lifestyle, as opposed to a job where





09

10

you work five days a week, nine to five. You have to live it and breathe it, seven days a week.

### What's your next project?

I'm dabbling with a couple of ideas for books. There's one I'm trying to connect the dots on, for which the word 'primordial' comes to mind. I want to shoot more earthy connections: larva coming out of the earth and those kinds

**// Next in India, I'm looking at people like the voodoos, shaman and witch doctors //**

of subjects. I'm also looking at cultures, but particularly people on the margins, the voodoos, shaman and witch doctors. Those are all themes that will be floating around in my brain as I travel to India and Indonesia and other places. They're all subjects that are all challenging to describe, let alone achieve. In the meantime, I'm progressing on my *Human Canvas* project and coming up with new ways of incorporating the human form into my images. **pp**

Art's book *Earth Is My Witness: The Photography of Art Wolfe* is published by Insight Editions, see his portfolio at [www.artwolfe.com](http://www.artwolfe.com)



## PROFILE

### Art Wolfe

Nature Photographer

Art Wolfe is recognised as one of the world's foremost nature and travel photographers. He has shot more than two million images in his 40-year career.

He has produced more than 80 books on wildlife, landscapes and indigenous cultures, including *Migrations* (1994), *Tribes* (1997), *The Living Wild* (2000) and *Vanishing Act* (2006).

He presented the US television photography series *Art Wolfe's Travels to the Edge*, which started in 2007 and has been syndicated worldwide.

His awards include the Progress Medal from the Photographic Society of America for his contribution to the art and science of photography.

"Art Wolfe's photographs are a superb evocation of some of the most breathtaking spectacles in the world."  
**Sir David Attenborough**

"Art Wolfe's work tells a story that is overwhelming, breathtaking, and vast."  
**Robert Redford**

"Art Wolfe is a virtuoso whose eye brings home, again and again, the absolute need to preserve what we have."  
**Morgan Freeman**

Next issue: Award-winning US-based sports photographer Tim Clayton



# PHOTOSTORIES

*Photo essays from PhotoPlus readers  
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**One of the great things about photography is being able to share your view of the world.** This issue, Drew Buckley captures stunning shots of Dalmatian pelicans around Lake Kerkini in Greece while guiding fellow photographers. Over in Norway, Neil Gosling takes us on a whirlwind road trip. While Rob Ellis stays closer to home to brush up on his portrait lighting skills while on location.

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## PROJECT INFO



**NAME:** Rob Ellis

**AGE:** 24

**LOCATION:** Somerset, UK

**MISSION:** To capture portraits in varying light and weather conditions and overcome the challenges each shoot presents

**KIT:** Canon EOS 5D Mark III, Canon EF 135mm f/2L USM, EF 24-70mm f/2.8L USM, Jinbei DC-1200 strobe, Lencarta Profold 120cm octabox

[www.flickr.com/photos/rob1991](http://www.flickr.com/photos/rob1991)

## See the light

Understanding how to work in varying light and weather conditions is key to capturing successful portraits out on location

**S**hooting portraits on location can present challenges with the constant change in light and weather conditions.

Despite this, one of the best things about shooting outside is the fact that you can shoot almost anywhere. I love to explore different locations and experiment with lighting. For the pet portrait I wanted to make the most of the bright sunlight. I don't usually shoot with hard light as it is generally

unflattering, but I felt that with a subject like a dog it may be a less of an issue. It was easy to capture this puppy as she moved about as she was quite slow and very curious about everything. I used a very shallow depth of field to blur the background and make the puppy the main focus. The image turned out really well and made me realize that, in certain situations, hard light such as the sun, can work well.

The shot of the girl on the bridge was taken on an





02

## // Shooting into the sun presented the challenge of either underexposing the model or overexposing the background //

overcast evening. Cloudy weather creates a broad soft light source, but it can also be quite flat looking, especially in an open area. The background looked good but I felt that the model needed to pop out more from her surroundings, so I underexposed the shot slightly and used a strobe light with a large octabox to the right of the camera and quite high up. I used a relatively wide f/4 aperture to blur the background, which also helped in separating the model from the background.

With the surfer's portrait I wanted to explore shooting into a light source, in this case

the sun. The photo was shot as the sun was setting, which created the perfect mood for the photo. I decided to have the model walking with his board away from the sea at the end of the day. Shooting into the sun presented the challenge of either underexposing the model or overexposing the background. To combat this I exposed for the background and used a strobe in a large octabox to the right of the camera to balance the exposure and fill in the model's shadows. I used a very narrow aperture to keep everything in focus and the shutter speed within the sync speed of the strobe. 📸



03

### 01 PUPPY LOVE

In certain situations, using bright sunlight can work really well

Lens	Canon EF 135mm f/2L USM	Exposure	1/6400 sec, f/2, ISO100
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### 02 GIRL ON THE BRIDGE

Using a strobe light in overcast conditions made the model pop out

Lens	Canon EF 135mm f/2L USM	Exposure	1/160 sec, f/4, ISO100
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### 03 SURFER AT SUNSET

Shooting the surfer as the sun was setting created the perfect mood

Lens	Canon EF 24-70mm f/2.8L USM	Exposure	1/160 sec, f/22, ISO100
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## PhotoPlus FEEDBACK

- Avoid shooting in direct midday sun as this produces very harsh shadows on portrait subject's faces, which will not be flattering
- Always have a backup plan in case the weather turns, and bear this in mind when picking your shoot location. A nearby shelter, such as a building, tree, or even your car, can be a lifesaver during any unexpected downpours



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\*than the Quadra Hybrid ©Tristan Shu



## PROJECT INFO



NAME: Neil Gosling

AGE: 56

LOCATION: Sognefjord, Norway

MISSION: To document a road trip to Norway in 2014

**KIT:** Canon EOS 5D Mark II, Canon EF 17-40mm f/4L USM, EF 24-105mm f/4L IS USM, EF 70-300mm f/4-5.6L IS USM, Bilora tripod with three-way Manfrotto head

[www.photocrowd.com/neilgosling](http://www.photocrowd.com/neilgosling)

01

# Norwegian road trip

Touring Norway's western coastline offers tantalising opportunities for landscape photographers

**O**ur Norwegian road trip provided a great opportunity to indulge in my passion. Norway is one of those big-scale countries with mountains, lakes and other natural features that are far bigger than any kind of imaginable human scale.

We stayed in a holiday let close to Smilden Bay, which we

visited many times in the evening. It's a beautifully peaceful location, and that is what I've tried to capture: solitude, peace and contentment as the sun sets over the Sognefjord. That's counterbalanced by a feeling of emptiness and forlorn; seeing the abandoned jetty and two old rowing boats, where there used to be vibrancy and vitality, as the nearby fish farm

once operated out of this now-quiet bay.

We visited another beautiful bay later on our trip. With its clap-board structures and traditionally coloured buildings, Hosanger is an archetypically Norwegian village. My tripod wouldn't drop low enough to get this angle, so I ended up bracing myself against the jetty while relying on Canon's excellent IS system. I used a narrow aperture to guarantee the scene was in focus, from the foreground into the distance. 

## 01 SMILDEN JETTY AT SUNSET

This is one of a series of images captured at Smilden Bay, near Sørbøvåg

**Lens** Canon EF 17-40mm f/4L USM

**Exposure** 1/80 sec, f/8, ISO400

## 02 HOSANGER BAY

An archetypal Norwegian bay on the west coast between Bergen and Fotlandsvåg

**Lens** Canon EF 24-105mm f/4L IS USM

**Exposure** 1/25 sec, f/16, ISO100

## PhotoPlus FEEDBACK

- Invest time researching the locations you're visiting
- Google Earth and local postcards are great for hunting out the best photo viewpoints

02







## PROJECT INFO

01



**NAME:** Drew Buckley

**AGE:** 29

**LOCATION:** Lake Kerkini, Greece

**MISSION:** Showcase these prehistoric looking birds and the place they call their winter home

**KIT:** Canon EOS 5D Mark III, EOS 7D Mark II, Canon EF 300mm f/2.8L IS USM, EF 24-70mm f/2.8L IS USM II, EF 70-200mm f/2.8L IS USM, EF 100-400mm f/4-5.6L IS USM II, Lee Filters

[www.drewbuckleyphotography.com](http://www.drewbuckleyphotography.com)

# Pelican weekend

The story of a memorable weekend in Greece taking photos of over 101 Dalmatians – and other local bird life!

**T**he location, Lake Kerkini. The target species, Dalmatian pelicans – and I can't think of a better setting in which to photograph these amazing birds! Lake Kerkini is in northern Greece, about 20km from the Bulgarian border, and offers some of the most accessible opportunities for bird photography in Europe. The lake and the surrounding wetlands are nestled between the Kerkini and Marvovouni mountains. It hosts more than 300 species of birds, including

the pelicans, cormorants, herons and flamingoes.

Mirror-like reflections on the lake greeted us daily, and with views backed by high snowy peaks, Lake Kerkini is a stunning place to be and a real paradise for birds. I was lucky enough to be a guide for the NaturesLens tour company on a weekend-long trip, consisting of many outings onto the lake in a small, open fishing boat.

The lake is extremely shallow; down to a few feet in some places, so it was important to keep an even weight across the boat to stop it

grounding out. It was very cold over the weekend-long trip, with freezing fog covering the lake in the mornings. Wearing pretty much every piece of clothing I owned, it was eye-watering sometimes, especially with the wind-chill. However, it did make for some spectacular and atmospheric conditions, with distant hills layered in mist and subject backgrounds blending into infinity, so I shouldn't moan...

We discovered the pelicans early on; they follow the pygmy cormorants around when they're fishing and pretty much





take the food straight from their mouths when they find it. This in turn signals to other distant pelicans to join the 'mob'. And what a bird they are! Truly stunning bill colours and curly feathers all over their heads. Couple that with such a fantastic environment and it's a really special location for avian photography.

The benefit of shooting from a boat was the ability to have a makeshift hide (although the birds weren't really put off by much) and also to get down low and shoot at eye level to the birds. Swapping between bodies and lenses to get varied images, it's always important, in my view, to shoot the wider

picture sometimes. In the afternoons we headed to the other side of the lake where the pelicans gather for a shoreline feed. This is not only a great opportunity to get super close-up portraits, but also, as more birds came in, you could get some really good action and in-flight images.

On another trip, we headed out on the boat again, and this time the birds followed us, allowing to get different angles of them in-flight and portrait images, with changeable backgrounds to vary the shots up. All-in-all, it was a fully packed weekend, with great company and lots of happy faces afterwards. 🐦

**// The benefit of shooting from a boat was the ability to have a makeshift hide and to shoot at eye level to the birds //**



#### 01 PELICAN IN FLIGHT

The right weather conditions give you mirror-like reflections

Lens	Canon EF 100-400mm f/4.5-5.6L IS II USM	Exposure	1/2500 sec, f/5.6, ISO640
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#### 02 CLOSE-UP PORTRAIT

At one side of the lake you could get really close to the birds

Lens	Canon EF 300mm f/2.8L IS USM	Exposure	1/5000 sec, f/4, ISO800
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#### 03 STRETCHING IN GOLDEN EVENING SUNSHINE

A wide-angle shot shows the spectacular mountain setting

Lens	Canon EF 24-70mm f/2.8L II USM	Exposure	1/2000 sec, f/7.1, ISO640
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#### 04 JUST THE ONE DALMATIAN

Isolating individual birds allowed for artistic compositions

Lens	Canon EF 100-400mm f/4.5-5.6L IS II USM	Exposure	1/1000 sec at f/5.6; ISO800
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## PhotoPlus FEEDBACK

- Research the best locations, and times of year, for getting the best shots of migratory birds
- If you don't have a long enough lens, hire one for the day or week. Hiring allows you to use a pro-grade fast-aperture super-telephoto
- Ensure you've got a fast enough shutter speed to freeze movement - at least 1/1000 sec - and increase the ISO if needed



# FOCUSPOINT

We'd love to hear your thoughts on the new-look mag and all things photographic! Email us at [photoplus@futurenet.com](mailto:photoplus@futurenet.com)

SHOT OF THE MONTH



## Solar eclipse of the heart

This shot of the partial solar eclipse was taken with my new Canon EOS 7D Mark II, with a Canon EF 70-300mm lens, shot at f/11, with a shutter speed of 1/200 sec. I also used a Pro ND 200 filter. This photo was taken at 9.26am on 20 March 2015. I live in Edinburgh and have lots of opportunities to photograph nature around me, but only one opportunity to get the perfect photo of the eclipse, so on the day I took over 100 photos, and feel this one showed the dramatic effect.

*John Watt, Edinburgh*

Every month we invite you to send in your best images, along with 50 words on the 'story' behind each shot (include Canon DSLR and lens used, plus exposure settings). Email [photoplus@futurenet.com](mailto:photoplus@futurenet.com) with Shot Of The Month in the subject header. Good luck!

## WIN A £50 CEWE VOUCHER!

Each issue, the photographer behind our Shot of the Month is awarded a £50 voucher to have their image professionally mounted. John's shot would look great on Foam Board – the high-resolution matte finish and outstanding print quality would show all the details of the clouds and shadows. CEWE Wall Art is available at [www.photoworld.com](http://www.photoworld.com)



Canon's new entry-level EOS 760D has got you all hot and bothered...

## I'm in love with the new Canon EOS 760D

You should never have told me about the new 760D... a full 60D better than my 700D! It sounds terrific and it has an electronic spirit level. Bliss! I think we'd make a lovely couple, but the 700D is going to have to go to make room for it and I feel a bit of a cad.

Looking forward to the review.  
*Keith Shenkin, London*

Sounds like a match made in heaven, Keith. The 760D is certainly an interesting proposition, taking elements from the higher-spec 70D and blending them with the smaller 700D. Is it the best of both worlds? Find out in our in-depth test of the new 760D (and 750D) next issue.

## Finally a magazine that's specifically for Canon

Like so many other novice DSLR photographers I've bought many photo magazines. But recently I bought *PhotoPlus*. Being a Canon shooter I was pleased to finally find a magazine that specifically dealt with Canon products. I was most impressed that your magazine not

only featured new products but also had articles including older models, like my 60D. The articles are well written and informative, without being either patronising or assuming the reader has a higher level of knowledge. You seem to have found a very good balance.

To make matters even better, I recently bought issue 96 containing a test of the Tamron SP 70-300mm f/4-5.6 Di VC USD lens, which, coincidentally, I had added to my kit only the week before. It was reassuring to read that I'd made a good choice with that lens. The Complete Lens Buyer's Guide in issue 96 will also prove to be very handy, so I can make a wishlist of future purchases.

Some people are quick to criticise, so I thought I'd let you know how much I appreciate your magazine. Well done, I look forward to reading many more.  
*Ross Sonter, Brisbane, Australia*

Ah shucks, stop it Ross, we're blushing... Seriously, it's great to receive some positive feedback from a happy customer. And we'll certainly be interested to hear what you think of our new-look magazine now that we've had an upgrade! Email us at [photoplus@futurenet.com](mailto:photoplus@futurenet.com) and let us know.

## It's all done with smoke and mirrors

I was recently inspired by the smoke-art photography project in issue 98 and decided to try it out one rainy weekend. I set up the incense sticks, black background and off-camera flash and began shooting. When I thought I had

## CONTACT US AT...

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**Have you been inspired by our projects? Send us your images. See page 55 for new Canon DSLR and photo projects**

enough, I loaded the photos up on my computer and could instantly see some interesting shapes. I tried a dancer, like the example in your magazine, and loved it! This made me want to do more, such as this butterfly, and I feel this is only the start of an exciting project – and all my friends seem to love them too.  
**Kelly Louise, Brisbane, Australia**

Very impressive, Kelly – a great job and we glad we've inspired you.

## ND graduated filter advice

I'm a subscriber to *PhotoPlus*, and I read with interest your feature on the Isle of Skye (The Apprentice, issue 98). Your expert, Chris Rutter, states that he nearly always uses a 2-stop ND grad to hold back detail in bright skies. How does he solve the problem of the ND grad darkening mountain tops? I use Lightroom 5 to edit my images. Can I use this to fix the problem?  
**Ian Bartley, from Stockport**

Our pro landscaper photographer Chris Rutter replies: "First I position the grad so it doesn't affect the landscape, then in Lightroom I use the Adjustment Brush to carefully 'paint' over the areas such as mountains affected by the grad (using the mask overlay to check that this isn't affecting the sky). Then use the Shadows or Exposure sliders to lighten these areas." 

**Use Photoshop masks carefully after using ND grads to shoot mountain scenes, says landscape pro Chris Rutter**

**SUBSCRIBE AND SAVE! SEE PAGE 28**

## THE SOCIAL NETWORK

**The most-popular stories found on the web this month**



Martin Le-May

### Weaselper madness!

Is it a bird? It is a plane? No, it's a weasel riding a woodpecker! This incredible shot went viral; it was taken by Martin Le-May, using his Canon EOS 70D and EF 300mm f/2.8L: [http://bit.ly/pp\\_weasel](http://bit.ly/pp_weasel)



### 52 photography projects

A photo idea to try every week in 2015! Have any of you been working on a photo project this year? 52 projects to try at: <http://ow.ly/Ks8ur>



### The new 50-megapixel full-frame Canon EOS 5DS

50MP full-frame sensor, anyone? Canon goes big, introducing the EOS 5DS and EOS 5DS R. Full specs and price here: <http://ow.ly/lyFhv>

### Killer pro techniques

10 killer photography tips the pros won't tell you: <http://ow.ly/14Am4>

## PhotoPlus The month in numbers

**100**

issues of *PhotoPlus* to date – and counting

**13**

Canon DSLRs in the current EOS lineup

**148**

pages in your bigger, better *PhotoPlus: The Canon Magazine*

**50.6**

million pixels in the new EOS 5DS sensor

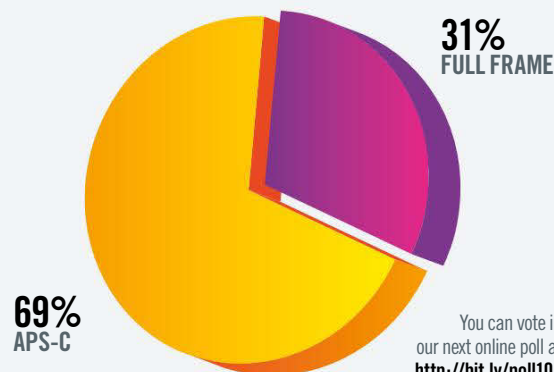
**2**

LCDs on the new Canon EOS 760D

**12**

consecutive years that Canon has been the top DSLR brand by volume

Online poll: Which type of Canon EOS DSLR do you use?



You can vote in our next online poll at <http://bit.ly/poll101>

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**DIGITAL CAMERA WORLD**

[www.digitalcameraworld.com](http://www.digitalcameraworld.com)



# MYKIT

Professional photographers reveal their top six tools of the trade they couldn't shoot without

Many of my macro pictures involve moving subjects smaller than a grain of rice

## Alex Hyde

Natural history photographer Alex tries to travel with the bare minimum of gear, but doesn't go anywhere without his tripod, or miniature in-the-field repair kit. . .

**M**any of us suffer from over-filled bags, bursting with gadgets that rarely see the light of day. Over the years I have been trying to pare things down to a core of essential items for my macro wildlife photography.

Some items, such as a small paintbrush for cleaning dirt off subjects like toadstools, take up very little space but can make all the difference to a shot. At the other end of the scale, you certainly notice

when you are carrying a tripod, and although relatively heavy, I almost always bring mine along. When shooting with natural light, shutter speeds can get very long indeed as the limited depth of field at high magnifications means narrow apertures are often required. In such cases, a sturdy tripod setup is essential. Frequently working with subjects close to the ground, I often use a Gitzo carbon fibre Systematic series tripod that has no centre column, allowing me to get down low. I use a large Really

Right Stuff BH-55 LR ball head that is rock solid while making it quick and easy to adjust the camera position. It's such a shame when a potentially breathtaking photo is ruined by a flimsy, wobbly tripod setup, so don't take shortcuts here if you can avoid it.

Equipment has a habit of breaking at the worst possible moment, so I always bring a small roll of electrical tape, some zip ties, a penknife and a set of Allen keys – this little toolkit has saved the day on numerous occasions and lives in the depths of my bag. 📷

### WHAT DO I DO?



### Alex Hyde

[www.alexhyde.co.uk](http://www.alexhyde.co.uk)

**I WORK** as a freelance natural history photographer, based in the Peak District, and also run photography workshops and tours. Whether in the rainforests of Borneo or my back garden, I am usually in search of insects, spiders and other creatures. When composing a scene through my macro lens, I am always struck with a sense of discovery. Many of my pictures involve moving subjects smaller than a grain of rice, requiring specialised macro equipment and a fair measure of patience!



## IN ALEX'S BAG


**01**  
**Canon**  
**MP-E 65mm**

WEB: [www.canon.co.uk](http://www.canon.co.uk)  
 PRICE: £849/\$1049

**I ALSO** shoot with Canon's 100mm IS Macro lens, which is razor sharp and still gets in very close, but some smaller subjects really benefit from going beyond the 1:1 enlargement ratio of a 'standard' macro lens. The MP-E 65mm f/2.8 can zoom from 1:1 all the way up to 5:1, opening up a new range of subjects. Filling the frame with an insect's head is always exciting! Depth of field is very limited, so precise focusing is required using my focusing rail.

**02**  
**Canon**  
**ST-E3-RT**

WEB: [www.canon.co.uk](http://www.canon.co.uk)  
 PRICE: £239/\$265

**THIS** controls my two off-camera 600EX-RT Speedlites. As a radio trigger it doesn't need a line of sight to fire the flashguns, making it very easy to use. I have found the system to be really reliable and it's very convenient to be able to adjust the power of each Speedlite independently, direct from the ST-E3-RT unit that sits neatly in the camera's hotshoe. Even when using a single flashgun, it's still great not to need a trailing off-camera flash lead that can get in the way.

**03**  
**Really Right Stuff**  
**Macro rail**  
**(B150-B)**

WEB: [www.reallyrightstuff.com](http://www.reallyrightstuff.com)  
 PRICE: £309/\$345

**THIS** attaches to the Really Right Stuff ball head on my battered Gitzo tripod. The rail enables me to move the camera backwards or forwards by tiny increments. When using Live View at 10x magnification, the macro rail means I can fine-tune exactly what's in focus. A full rotation of the knob gives 1mm of movement. I also use this to advance the camera forward between frames when focus stacking.

**04**  
**Mighty Bright**  
**LED book light**

WEB: [www.amazon.co.uk](http://www.amazon.co.uk)  
 PRICE: £10/\$10

**DUE** to light loss at high magnifications, things can get pretty dark when using my MP-E 65mm macro lens. I find clipping this little LED light to my setup helps me get the light I need for accurate focusing. This LED isn't being used to light the finished photograph, as I normally use flash when working with the MP-E 65mm, but simply to allow me to see to compose and focus. It's sold as light to clip onto a music stand or a book.

**05**  
**White tray**

**I USE** this white tray for my field studio work. It's made from translucent white plastic so a flash can be placed beneath it to remove any shadows from underneath a subject sitting on the tray, creating a pure white background. A second flash is positioned above the tray to light the subject. I photograph insects with this setup and also aquatic creatures, as the tray can be filled with water. All of this work is done out in the field so the subjects can quickly be returned to their habitats.

**06**  
**Novoflex**  
**Ground spike**  
**rod system**

WEB: [www.novoflex.com](http://www.novoflex.com)  
 PRICE: £40.43/\$54.70

**THE** next best thing to a third arm, this modular system from Novoflex allows me to be hands-free with my off-camera flash. The spike can be pushed into the ground and will support a large Speedlite such as the 600EX-RT. The flash is mounted onto the small ball head at the end of the rod, allowing the flash to be articulated at various angles, and additional rod sections can be added if you need more height.



Find much more at [www.srb-photographic.co.uk](http://www.srb-photographic.co.uk)



## Circular Filters

Polarising Filters	ND 1000 Filters
49mm £16.75	49mm £20.00
52mm £17.00	49mm £21.00
55mm £17.00	52mm £21.50
58mm £17.00	55mm £23.00
62mm £17.50	58mm £24.50
67mm £18.00	62mm £26.00
72mm £19.00	67mm £27.00
77mm £21.00	72mm £28.00
82mm £26.00	77mm £30.00
86mm £33.50	82mm £35.00

Sizes 25 to 86mm



SRB's ND1000 wins Best Value in Photo Plus' Big Stopper Group Test!



### Infra Red Filters

52mm £19.95
55mm £20.95
58mm £20.95
62mm £21.95
67mm £22.95
72mm £24.95
77mm £29.95
82mm £39.95

Sizes 28 to 105mm

### UV Filters

52mm £12.95
55mm £12.95
58mm £13.95
62mm £13.95
67mm £14.95
72mm £15.95
77mm £17.95
82mm £19.95

Sizes 25 to 105mm

### ND Filters

Full ND, Hard ND and Soft ND are available in: 0.3, 0.6, 0.9, and 1.2

Full ND Filters	ND Grad Filters
46mm £17.00	46mm £16.50
49mm £17.00	49mm £17.00
52mm £18.00	52mm £18.00
55mm £19.00	55mm £19.00
58mm £20.00	58mm £19.50
62mm £21.00	62mm £20.00
67mm £23.00	67mm £21.00
72mm £26.00	72mm £21.50
77mm £28.00	77mm £22.50
82mm £31.00	82mm £24.50

Sizes 22 to 82mm

Sizes 40.5 to 82mm

ND & ND Grad Filters listed in AP's Top 10 Landscape Accessories Scored a Max 5 stars in the Digital Camera ND group test, winning the Gold & Value awards



### Variable ND Faders

46mm £26.00
49mm £27.00
52mm £27.50
55mm £29.50
58mm £31.00
62mm £32.00
67mm £35.00
72mm £36.00
77mm £39.00

Awarded four Stars from Amateur Photographer for Quality & Value



## Close Up Lenses

52mm £17.00
55mm £18.00
58mm £19.00
62mm £20.00
67mm £21.50
72mm £23.00
77mm £24.50



Set contains 4 lenses

Photoplus Best on Test 90% rating (Spring 2013)

"Image quality is impressive with a whopping +17 dioptres magnification. An absolute steal at that price!"



## Square Filters

### ND Glass Pro Filters

0.3 ND Glass Pro	£29.95
0.6 ND Glass Pro	£29.95
0.9 ND Glass Pro	£29.95



Awarded 5 stars from for Build & Image Quality, and Value for Money Digital Photo April 2014



### Pro Filter Holders

A Size	£19.95
P Size	£24.95

NEW Aluminium Filter Holder



### Pro Filter Kits

A Size Starter	£34.95
A Size Filter	£59.95
P Size Starter	£39.50
P Size Filter	£64.95

### Filters

A Size	£8.95
P Size	£5.00
P Size W/A	£5.00

### ND Filter Kits



- 3 ND Grad Filters	- Adapter Ring
- Wallet	- Holder
- Cloth	
A Size	£49.95
P Size	£49.95
P Size W/A	£49.95

Available in Full, Soft & Hard

### Adaptor Rings

A & P Size	£4.95
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### Square Filter Sets

Landscape	£37.50
Black & White	£39.00

### ND Filter Sets

Full ND	£34.95
Soft ND Grad	£34.95
Hard ND Grad	£34.95

### Individual Square Filters

0.3 Full ND	£13.50
0.6 Full ND	£13.50
0.9 Full ND	£13.50
1.2 Full ND	£15.95
0.3 Soft ND Grad	£13.50
0.6 Soft ND Grad	£13.50
0.9 Soft ND Grad	£13.50
1.2 Soft ND Grad	£15.95
0.3 Hard ND Grad	£13.50
0.6 Hard ND Grad	£13.50
0.9 Hard ND Grad	£13.50
1.2 Hard ND Grad	£15.95
Circular Polariser	£26.00
Blue Grad	£13.50
Sunset Grad	£13.50
Twilight Grad	£13.50
Red	£13.50
Green	£13.50
Orange	£13.50
Yellow	£13.50
4x Star Effect	£13.50
6x Star Effect	£13.50
8x Star Effect	£13.50



## Step Rings

This is some of our stock. You name it, we'll make it.

Thread	Range	Thread	Range
37mm	27-72	55mm	46-77
37.5mm	37-52	58mm	46-77
38.1mm	40.5-58	62mm	52-77
39mm	49-52	67mm	58-82
40mm	49	72mm	86-105
40.5mm	37-58	77mm	58-105
43mm	37-72	82mm	72-105
43.5mm	46-58	86mm	72-105
46mm	37-62	93mm	82
48mm	46-58	95mm	82-105
49mm	37-77	105mm	86-95
52mm	46-77		

From £4.95

## Lens Adaptors

Camera	Lens	£
Canon EOS	to M42	£16.95
Canon EOS	to Nikon	£22.95
Canon EOS	to Pentax K	£24.95
Canon EOS	to Olympus OM	£24.95
Canon EOS	to Con/Yash	£24.95
Canon EOS	to Leica R	£22.95
Canon EOS	to Leica M	£24.95
Canon EOS	to Canon FD	£44.95
Canon EOS-M	to Canon EOS	£29.95
Canon EOS-M	to Leica M	£29.95
Canon EOS-M	to Nikon	£29.95
Canon EOS-M	to Canon FD	£29.95
Canon EOS-M	to C Mount	£29.95
Canon EOS-M	to M39	£29.95
Canon EOS-M	to M42	£29.95
Fuji X	to M42	£24.95
Fuji X	to Leica M	£29.95
Fuji X	to Nikon	£29.95
Fuji X	to Canon EOS	£29.95
Fuji X	to Olympus OM	£29.95
Fuji X	to 4/3	£29.95
Fuji X	to Canon FD	£29.95
Fuji X	to Con/Yash	£29.95
Nikon	to M42	£24.95
Nikon	to Canon FD	£44.95
Nikon	to C Mount	£32.95
Nikon 1	to M42	£24.95
Nikon 1	to M39	£22.95
Nikon 1	to Nikon	£29.95
Nikon 1	to Canon EOS	£44.95
Nikon 1	to Pentax K	£29.95
Nikon 1	to Leica M	£39.95
Nikon 1	to Leica R	£37.95
Nikon 1	to Con/Yash	£29.95
Micro 4/3	to Canon EOS	£29.95
Micro 4/3	to Nikon	£29.95
Micro 4/3	to Nikon G	£34.95
Micro 4/3	to M42	£29.95
Micro 4/3	to Olympus OM	£29.95
Micro 4/3	to Minolta MD	£29.95
Micro 4/3	to Leica R	£29.95
Micro 4/3	to Leica M	£29.95
Micro 4/3	to Sony Alpha	£34.95
Micro 4/3	to Pentax K	£29.95
Micro 4/3	to Canon FD	£29.95
Micro 4/3	to Con/Yash	£29.95
4/3	to M42	£17.95
4/3	to Con/Yash	£22.95
4/3	to Leica R	£22.95
4/3	to Nikon	£22.95
4/3	to Olympus OM	£22.95
4/3	to Pentax K	£22.95
Pentax	to M42	£18.95
Pentax	to Nikon	£44.95
Pentax	to Sony Alpha	£44.95
Pentax	to Canon FD	£44.95
Sony Alpha	to M42	£15.95
Sony Alpha	to Minolta MD	£44.95
Sony Alpha	to Nikon	£44.95
Sony Alpha	to Pentax K	£44.95
Sony Alpha	to Canon FD	£44.95
Sony NEX	to Canon EOS	£29.95
Sony NEX	to Nikon	£29.95
Sony NEX	to Sony Alpha	£34.95
Sony NEX	to Olympus OM	£29.95
Sony NEX	to Pentax K	£29.95
Sony NEX	to Leica M	£29.95
Sony NEX	to Leica R	£29.95
Sony NEX	to Canon FD	£42.95
Sony NEX	to M39	£23.95
Sony NEX	to M42	£23.95

Visit [SRB-Photographic.co.uk](http://SRB-Photographic.co.uk) for more adaptors!

## Cleaning

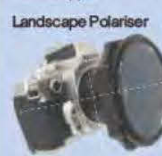
3in1 Cleaning Kit	£7.50	Hurricane Blower	£4.95
6in1 Cleaning Kit	£9.95	Blower brush	£3.50
Lens Pen	£4.95	Dust Blower	£4.95
Cleaning Cloth	£1.50		
Cleaning Solution	£1.25		



## Lee Filters

### 100mm System

Adaptors Rings	£20.00
Foundation Kit	£58.50
Professional Kit	£115.00
Upgrade Kit	£75.00
ND Grad Sets	£195.00
Individual Filters	£75.00
Big Stopper	£104.95
Little Stopper	£95.99



NEW

### Lee Seven5

Holder	£59.50
Adaptors	£17.50
Starter Kit	£109.00
ND Grads	£52.00
ND Filters	£64.95
Big Stopper	£62.00
Polarisers	£180.00

### Lee SW150

- Adaptor	
- Holder	
- 0.8 Hard Grad Filter	
Starter Kit	£310.00

## Hoods & Caps

### Lens Snap Caps

52mm	£3.95
55mm	£3.95
58mm	£3.95
62mm	£3.95
67mm	£3.95

Sizes 27 to 50mm

### Rubber Lens Hoods

58mm	£4.95
62mm	£4.95
67mm	£4.95
72mm	£4.95
77mm	£4.95

Sizes 40 to 77mm

## Accessories

Camera Spirit Levels	£3.50
Memory Card Cases	£9.95
Reflector Kits	£9.95
Rain Sleeves	£5.95
White Balance Caps	£9.95
Filter Stack Caps	£8.95
Motion & Lightning Sensors	£84.95
Right Angled View Finder	£39.95

### NEW Selfie Stick

	£9.95
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### Bluetooth Remote Shutter

	£4.95
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Optech EZ Comfort Strap	£9.99
Optech Gocha Wrist Strap	£9.99
Optech Tripod Strap	£19.99
Optech Utility Strap - Sling	£19.99

### NEW

### Ollclip 4-IN-1 Photo lens

for iPhone 5/5s	£59.95
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### Ollclip 4-IN-1 Photo lens

for iPhone 6 & 6 Plus	£69.95
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### NEW

## Shutter Release

Compact Shutter Release Bracket	£19.95
DSLR Shutter Release Bracket	£24.95
Angled Shutter Release Bracket	£24.95
Compact Self Take Kit	£24.95
DSLR Self Take Kit	£34.95
Angled Self Take Kit	£34.95



Winners of the Good Service Gold Award 2015

"If you're hesitant about investing in filters, SRB is a good place to start. An Excellent choice." Amateur Photographer May 2014



# CANON SCHOOL

*Your ultimate photographic reference guide  
to the complete Canon EOS DSLR system*

## DIGITAL SLR ESSENTIALS

### The fundamentals to getting a great exposure

We kick off a major new series on the essentials of photography, which will build up into the ultimate reference to your Canon DSLR. In part one, we look at the complete exposure journey – and the different roles that you and your equipment play in turning the world around you into the perfect picture.



### WITH PhotoPlus EXPERT

**ANDREW JAMES**

PHOTO EXPERT

Andrew James has combined photography with writing for over 25 years. He uses a Canon 5D Mk III and 1D X, he teaches on photography holidays and workshops, and runs PhotoBuzz.



## SOFTWARE SOLUTIONS

### Learn to master Canon's free suite of software

Did you realise that one of the CDs that came with your Canon is stuffed full of useful free software? We want you to see the potential of all these programs, and this issue begins with essential guides to Canon's Digital Photo Professional editing program, and the incredible EOS Utility remote control package.



### WITH PhotoPlus EXPERT

**GEORGE CAIRNS**

EDITING EXPERT

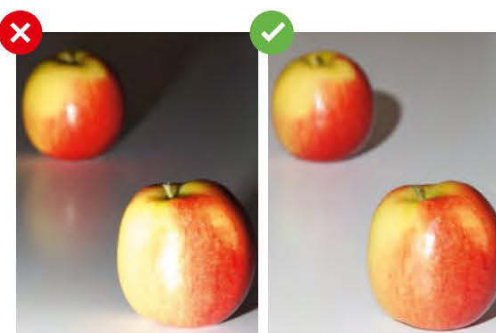
George Cairns has been writing image-editing tutorials for PhotoPlus since our first very issue, back in 2007. He uses a Canon EOS 650D and 70D, and writes for the Canon Professional Network newsletter.



## EOS S.O.S

### Need a question answered or a problem solved?

Our new Canon queries clinic is now open! It doesn't matter how major or minor your photographic problem, our Brian is the man with the answers. This issue he takes on queries on diffraction, Mac editing software, UDMA 7 memory cards, and using teleconverters on superzooms... then talks to a man about a dog!



### WITH PhotoPlus EXPERT

**BRIAN WORLEY**

CAMERA EXPERT

Brian has unrivalled EOS DSLR knowledge after working for Canon for over 15 years. He now works as a freelance photographer and photo tutor in Oxfordshire.





# DIGITAL SLR ESSENTIALS

Welcome to Canon School. In the first Digital SLR Essentials section we explain all you need to know about exposure

## PhotoPlus EXPERT

ANDREW JAMES

PHOTO EXPERT

Andrew James has combined photography with writing for over 25 years. He uses a Canon EOS 5D Mk III and 1D X, he teaches on photography holidays and workshops, runs online photo community FotoBuzz – and now is *your* tutor at Canon School.



# The photographic journey

From conception to completion, we explain the fundamentals of taking a photograph

**To kick-start our new Canon School series, let's look at the most fundamental aspect of owning a DSLR – making an exposure.**

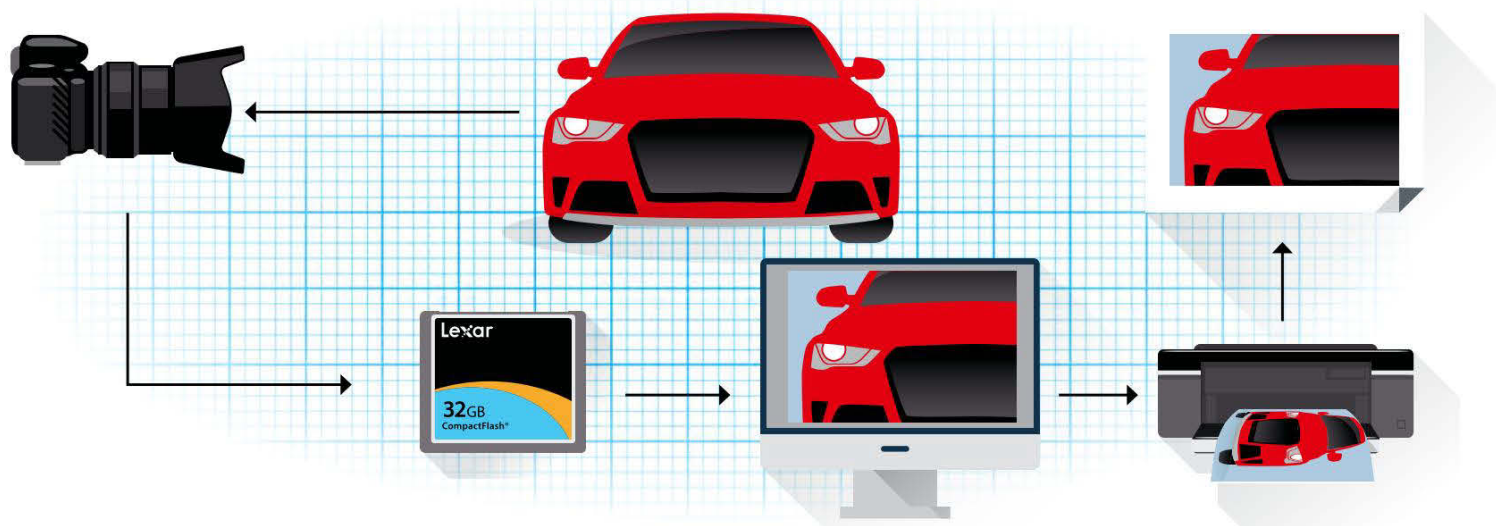
After all, this is what we do as photographers time and again. We visualise an image in our mind's eye, press the shutter button on our Canon DSLR,

the shutter opens to expose the digital sensor to light, and the image is captured.

It sounds so simple when put like this, but exposure can frequently trip us up, and the more creative we want to get, the more complicated it appears to be. The fact is, if you master a few simple factors with your camera then

what seems unfathomably complex will suddenly appear as clear as spring water. It all revolves around what we've called 'the exposure triangle' – which includes three main elements: aperture, shutter speed and ISO. We'll get more into those settings over the page. For now, let's look at the picture-taking process.

It starts by light entering the camera and registering on the light-sensitive sensor at its heart. It is then stored on a memory card. The digital files are transferred from the card to a computer and finally, we hope, printed to create a wonderful photograph that can be framed and hung on the wall for all to enjoy.



### CANON DSLR & LENS

Each relies on the other: the camera houses the sensor on which the exposure is captured, but the lens is needed to harness the light. By altering the size of the hole through which the light is passing you can change the look of your images by increasing or decreasing areas that appear sharp.

### MEMORY CARD

The memory card is your digital film – and the bridge between camera and computer. All current entry and enthusiast-level Canon DSLRs take SD cards, though the 7D Mk II, 5D Mk III and 5DS are also compatible with CompactFlash cards. However, the EOS 1D X takes CompactFlash only.

### COMPUTER

Raw files are like negatives that first need processing, but the computer replaces the darkroom. You can use Canon's Digital Photo Professional (page 102), or opt for Raw software such as Adobe Lightroom (page 74) or Adobe Camera Raw that's part of Photoshop CC/Elements (page 70).

### PRINTERS

Replacing the high-street lab, online print companies are relatively cheap and easy to use for everything from a basic print to a cushion, or you can opt to print at home on a bespoke photo printer. Canon's PIXMA range of printers produce superb results, as do brands like printer-specialist Epson.



**BASIC & CREATIVE ZONE**

# Understanding the Mode dial

Why moving from Basic Zone into Creative Zone will improve your photography

**0** n the top of your EOS (unless you own a 1D X) is the Mode dial. This circular wheel gives you access to all the camera's exposure modes.

The automatic exposure modes are found in the 'Basic Zone', and are represented by pictorial symbols – a mountain for Landscape mode, a face for Portrait mode and so on. But

your only control is switching to each mode in the first place; after this the camera takes over, so what it decides is the 'correct' combination of aperture, shutter speed and ISO is what you get.

Switch to Sports mode, for example, and the camera judges the lighting conditions and comes up with an 'appropriate' fast shutter

speed for a moving subject, possibly pushing ISO higher to achieve it. It will also set the camera's AF mode to AI Servo, Drive mode to Continuous shooting, and make all AF points active, all of which help get a sharp shot of a moving subject.

So why would you want to work any other way? Well, your camera will have done an okay

job in getting an acceptable shot. But you could undoubtedly do better working in one of the semi-auto or full manual exposure modes, otherwise known as the Creative Zone...



## Creative Zone

Take total control of your camera by selecting a semi-automatic – or full manual – exposure mode

**CREATIVE ZONE** modes (M, Av, Tv and P) not only enable you to take partial or total control of the exposure, dialing in the shutter speed and/or aperture you desire, but also aspects such as ISO, Drive and AF settings, unavailable in Basic Zone modes. They're available on every EOS (on more advanced models, they're the only modes available). Here's an outline of the Creative Zone modes...

### Manual (M)

*In manual mode you physically set both the shutter speed and aperture. If you get either wrong it will adversely affect your exposure, so this is a setting to use only when you are 100% comfortable with how exposure works.*

### Aperture Priority (Av)

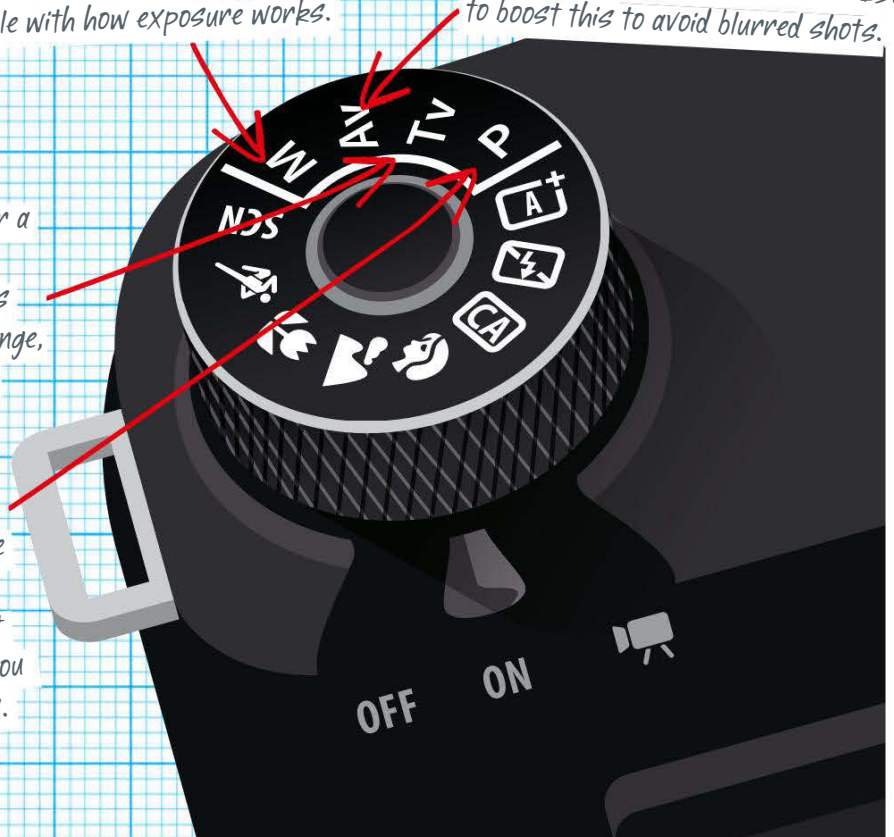
*You choose the aperture and your DSLR selects the shutter speed. Av mode is good when you want to control depth of field, but watch the resultant shutter speed – you may need to increase ISO to boost this to avoid blurred shots.*

### Shutter priority (Tv)

*You select the shutter speed and the camera attempts to set an aperture for a correct exposure. But look out for a 'blinking' aperture number – this means the exposure is beyond the aperture range, meaning under- or overexposed shots.*

### Program (P)

*The camera sets both aperture and shutter speed. However, you can change the exposure for a wider aperture or faster shutter speed, for example, but both settings are changed in unison. You can also change ISO and focus modes.*

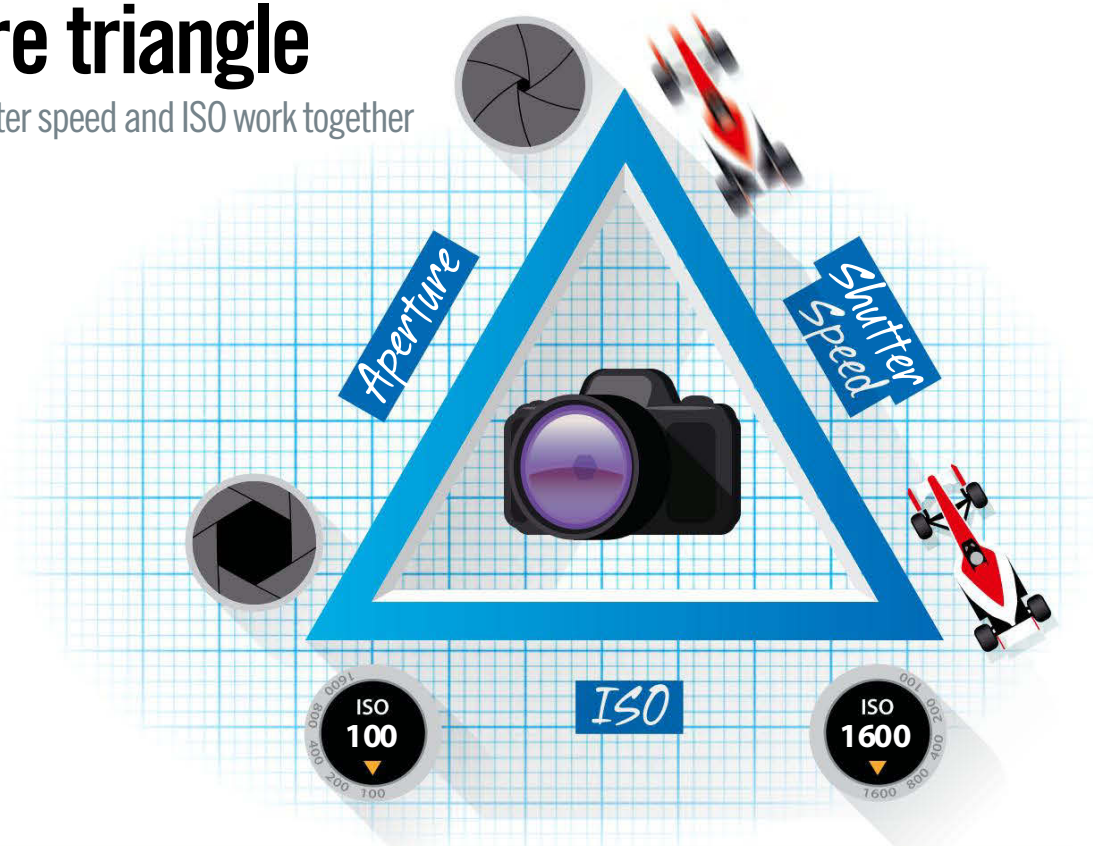




# The exposure triangle

Discover how aperture, shutter speed and ISO work together

**T**o take the next step with your Canon photography, it's absolutely essential to understand the relationship between the three main elements that come together to make the exposure. One way of remembering the three key ingredients is the exposure triangle, with aperture, shutter speed and ISO on each of the three sides. Each decision you make in terms of aperture, shutter speed and ISO will have an affect on the look of your image. This is why it's creative! We will be covering each one of them in much greater detail in the future but here is a run through the basics...



## Understanding exposure one stop at time

The key to creative photography is understanding how changing one side of the triangle affects the others



### Aperture

**AT ITS MOST** basic the aperture is simply the hole through which light enters. Different aperture settings alter the size of the hole and let in more or less light. The aperture scale is measured in f-stops, but the logic can be rather baffling because it is an apparently random string of numbers that goes f/2.8, f/4, f/5.6, f/8, f/11, f/16. At its simplest level, the smaller the f-stop (f/2.8 or f/4) the larger the aperture and the more light that comes in. The greater the number (f/11 or f/16), the smaller the aperture and the less light comes in.



### Shutter speed

**THE SHUTTER SPEED** is the time the shutter is open to allow light through to the sensor. So if the aperture is the hole through which the light is travelling, then shutter speed is the period for which that hole remains open. Shutter speed is also measured in stops, but is easier to understand because each f-stop is roughly double its neighbour, and is measured in seconds (more commonly, fractions of a second), and goes 1/8, 1/15, 1/30, 1/60, 1/125, 1/250 sec. The smaller the fraction, the faster the shutter speed.



### ISO

**THE ISO SETTING** denotes the sensitivity of the camera's sensor. It, too, is measured in f-stops, and doubles as it moves along the scale – 100, 200, 400, 800 and so on. The beauty of the ISO setting on a digital camera is that it can be changed from shot to shot as conditions dictate – in the days of film you were stuck with a fixed sensitivity for the whole roll! When light levels are low you can increase ISO to lift shutter speed to avoid camera-shake issues, however, the higher the ISO, the more the image will be degraded by 'noise'.



### Key to creativity

**EVERY IMAGE** taken with a DSLR is an equation of aperture, shutter speed and ISO. They enjoy a reciprocal relationship and, for a given exposure, if you increase one element of the exposure triangle by one stop, then you will also have to decrease one of the other parameters by one stop. For example, if camera is set to 4 secs, f/16, ISO100, and you decide to reduce the aperture to f/22, you will also have to either increase the shutter speed to 8 secs or ISO to 200 to compensate.



**EXP COMPENSATION**

# Making the shot lighter or darker

Learn when you'll need to take control of your exposures for the best results

**W**hen shooting in the semi-auto Av or Tv modes, the camera takes a meter reading of the scene then sets the other side of the exposure triangle for a 'standard exposure' to match your ISO setting. But

what the camera thinks is the perfect exposure might not yield the results you're after. For instance, when shooting a portrait with sun behind them the camera might expose for the brighter sky, plunging your subject into darkness. Or when

photographing a sunset, the camera will set an exposure for a balanced scene, rather than the dramatic silhouette you had in mind. To get around this, you can brighten or darken your photo using exposure compensation. Dialing in

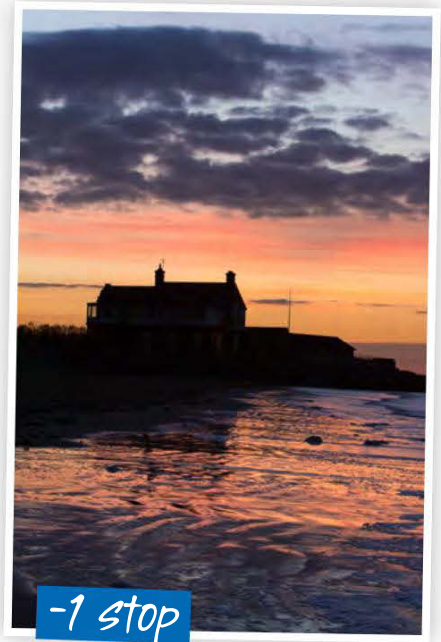
positive compensation brightens a shot, while negative compensation darkens it. Exposure compensation is also applied in 'stops' (usually thirds of a stop) and will improve your results when you're faced with challenging lighting conditions.



*Manually brightening the exposure here as ensured the portrait subject's face isn't rendered too dark*



*No exposure compensation was needed as this scene doesn't have high-contrast areas*



*Manually darkening this shot has made sure the sunset isn't bleached out*

## Picture styles

Apply in-camera processing to match your subject, from detail-rich landscapes to flattering portraits

**JPEG IMAGES** can have different 'picture style' parameters applied to them and, if you regularly shoot JPEGs to save yourself processing time, this is definitely worth exploring. For example, setting the Landscape picture style boosts the greens and blues in the image, and sharpens detail, while the Portrait picture style will accentuate skin tones and apply more moderate sharpening to keep complexions soft. You can further fine-tune the

Sharpness, Contrast, Saturation and Colour Tone settings of picture styles, and it's worth experimenting to get the look that you like. You can also create your own user-defined picture styles, or download them.

When shooting in Raw, the preview on your camera's LCD is, in fact, a JPEG, complete with picture style processing, but the actual Raw image data will be unaffected. For a closer rendition of the Raw image, set the Neutral or Faithful picture style.



**The picture style has a big impact on your images – if you shoot JPEG. If you shoot Raw, you can change the picture style in DPP afterwards**



# Exposure assessment with histograms

Discover how the little graphs on your Canon DSLR's LCD can help progress your photography

**W**hen it comes to assessing an exposure, we've never had it so good. Not only do DSLRs give you the instant comfort of the LCD screen, they also have incredibly useful histogram graph. If you ignore histograms, then you're not using the assessment powers of your camera enough.

The brightness histogram is accessed by hitting the INFO button when you have an image displayed on the LCD. This graph is a representation of the combined red, green and blue tones that make up your image, running from 0 (pure black) on the left to 255 (pure white) on the right. The most important thing to avoid is 'clipping' the histogram, where

the tones in the graph are bunched flat at the left (underexposed) or pushed flat to the right (overexposed). If the graph is clipped either end, use exposure compensation to reign it in. If the histogram is clipped at both ends, then you need to judge whether it's most important to have some parts of the scene over- or underexposed.

Press the INFO button again to display the RGB histogram, which displays the spread of tones in the individual colour channels. However, the brightness histogram is generally the most useful.

Enabling the Highlight Alert warning provides a helpful indicator that your exposure needs looking at; overexposed areas flash black and white.

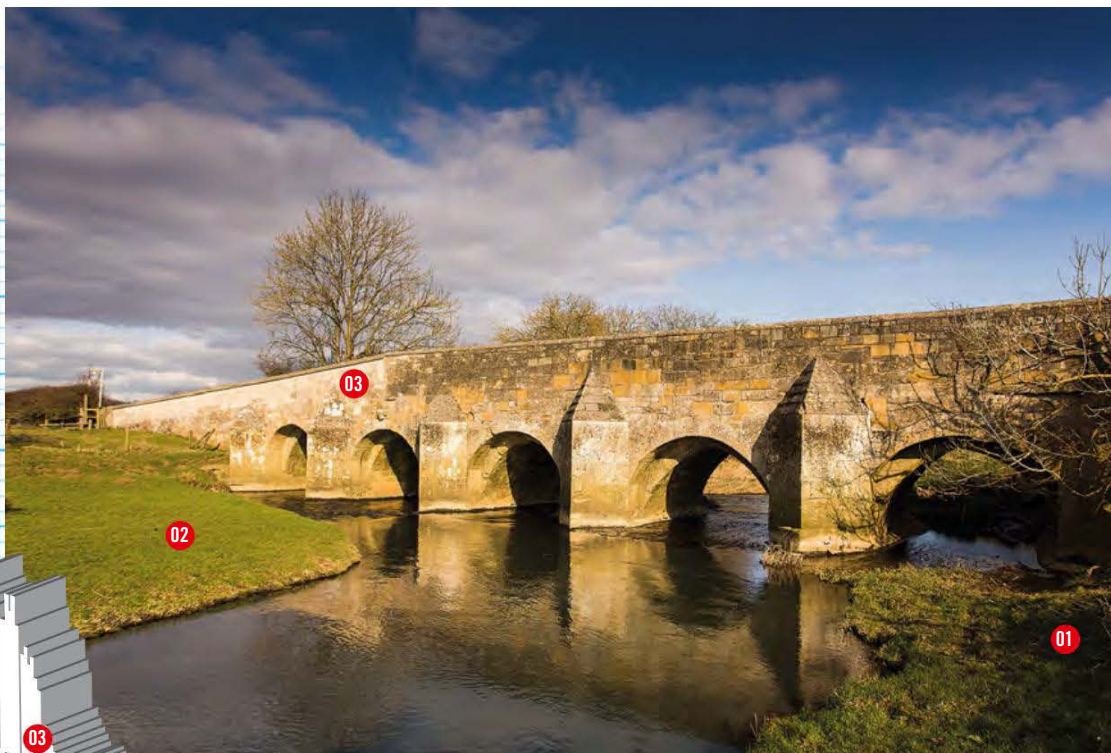
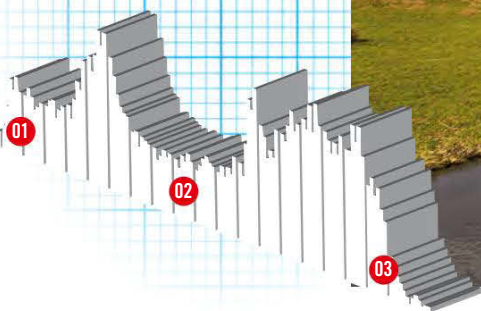
## Histogram explanation

The histogram on your Canon's LCD shows the tonal range of your images across the graph like so...

**Shadows:** Left side

**Midtones:** Middle area

**Highlights:** Right side



# Live View and Exposure Simulation

See your photo *before* you hit the shutter to take guesswork out of exposure

**CANON DSLRS** offer Live View shooting, and this can prove very useful when assessing exposure. Live View isn't suitable for every sort of photography, because it isn't as quick to focus on your subject, but where AF speed is less critical, such as when shooting landscapes, then Live View is an option to gauge exposure accuracy.

In Live View, your camera operates with the mirror flipped out of the way, and the image you see on the LCD is fed 'live' from the camera sensor, giving an accurate representation of the image that will be captured. Putting the camera in Live View and seeing how the scene lightens or darkens as you change elements of the exposure triangle

– shutter speed, aperture and ISO – is a really good exercise.

In some EOS DSLRs, such as the 5D Mk III and 7D Mk II, you will need to enable Exposure Simulation via the menu for the LCD to show your exposure changes; if this is disabled then the screen will remain at a constant brightness, no matter how you alter



the exposure. You can also overlay the brightness histogram onto the Live View image. Simply press the INFO button until it appears on the screen.



**CHOOSE YOUR SETTINGS**

# Decision-making when you shoot

Every shot is different. Here are the decisions we had to make when shooting two very different subjects. . .

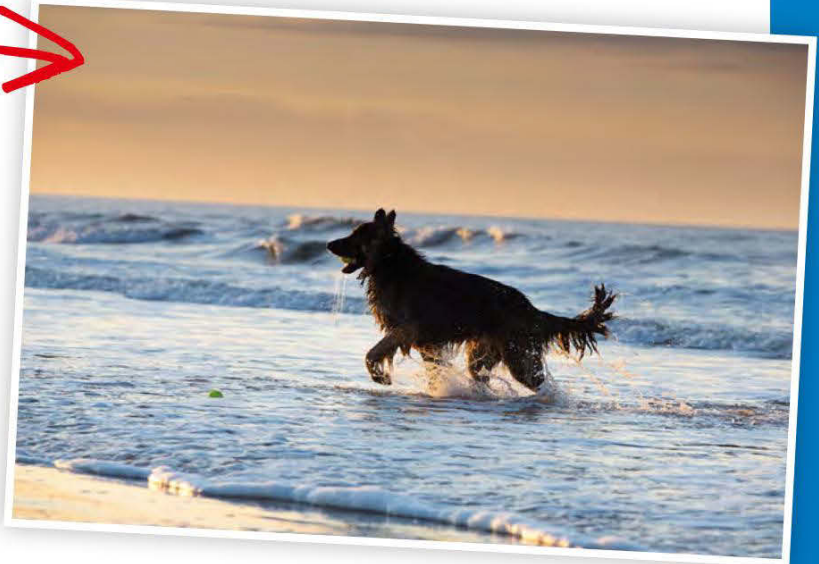
## Backlit dog (active)

**Exposure details:** 1/500 sec, f/4, ISO800

**Conditions:** Late evening, sun setting behind the subject.

**Subject considerations:** The subject is very active and we need to ensure the dog is pin-sharp in relatively low light. Handholding is our only option, because the dog is moving.

**Settings:** Switch to Tv, select a fast shutter speed of 1/500 sec and check the aperture chosen. But at f/4, our lens's widest available aperture, the aperture number is blinking, indicating the exposure will not be correct. So we push ISO up from 100 until it stops blinking; this is three stops higher, at ISO800. To ensure accurate focusing we switch AF to AI Servo and Drive mode to High-speed Continuous.



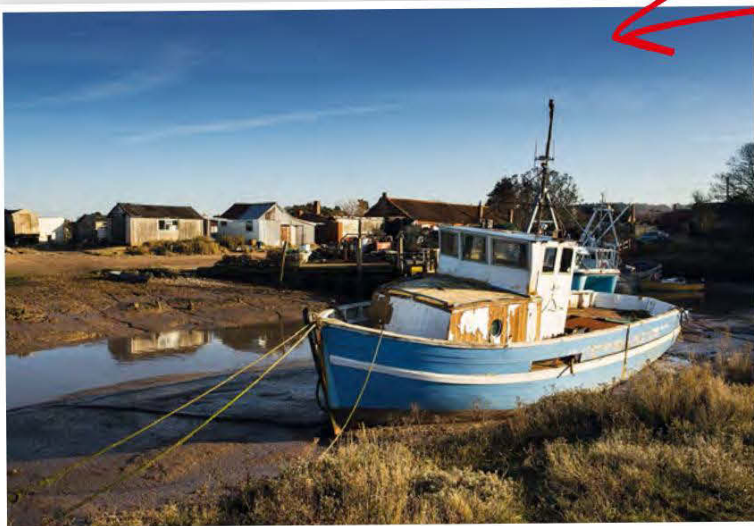
## Landscape image (static)

**Exposure details:** 1/30 sec, f/16, ISO100

**Conditions:** Early evening sunlight falling onto the subject.

**Subject considerations:** The subject is static, so shutter speed is not the primary consideration here. However, we want to ensure plenty of depth of field.

**Settings:** Switch to Av mode and set aperture to f/16. We select the lowest ISO of 100 for maximum image quality; we then get a shutter speed of 1/30 sec. Handholding is not advisable at this speed so, to avoid shake, we put our DSLR on a tripod. For precise focusing we switch to Live View and focus manually, magnifying to 10x view to check sharpness.



## School tip: My Menu

Access often-used functions at super-quick speed

**USING YOUR** EOS camera's menu correctly is a good habit to get into because it means you can make important changes efficiently, leaving you free to concentrate on getting the shot. Furthermore, you can store functions that you regularly use in the My Menu option. Here, you can set up to six different functions that you want to have access to quickly and

they'll always be there, as long as you're operating in one of the Creative Zone modes. For example, if you are a landscape photographer and regularly want to enable or disable Mirror Lockup, register it to My Menu. Once you have your six most useful functions registered, you can even put them into a specific order to help you get to them even quicker.





# SOFTWARE SOLUTIONS

Get to grips with Canon's free Raw image organising, editing and sharing software – Digital Photo Professional 4

## PhotoPlus EXPERT

GEORGE CAIRNS

IMAGING EXPERT

George Cairns has been writing image-editing tutorials for *PhotoPlus* since our first very issue, back in 2007. He uses a Canon EOS 650D and 70D, and writes for the Canon Professional Network – a newsletter for Canon pro kit users.



# Digital Photo Professional 4

Import and sort your Raw images using Canon's DPP 4, as [George Cairns](#) explains

**C**anon's Digital Photo Professional 4 is designed to help you import, organize, edit and share your photographs.

Although you're a Canon enthusiast, you may be diehard Adobe Photoshop user when it comes to processing your pictures. However, since Digital Photo Professional 4 is designed by Canon to be compatible with your Canon

Raw files, then it's well worth giving the latest incarnation a closer look, especially with its slick redesign and range of new tools and features.

DPP 4 now features tools that Photoshop CC users are familiar with, such as the ability to make selective hue, saturation and luminance adjustments for a range of individual colours. Later in this series we'll explore the image processing functions of

DPP 4 in detail, but we'll kick off by introducing the many ways it enables you to organize your images.

### Easier access

DPP 4 uses the separate EOS Utility 3 to browse and import photographs on a connected camera's memory card. We'll look at this partner app in more detail on page 104. Here we'll show you how to use DPP 4 to access and import Raw

images that are already stored on your computer. Your photographs may be stored chronologically in various folders on your computer. This can make it a time-consuming task to locate a specific image. DPP 4 enables you to separate the wheat from the chaff by using labelling tools, such as check marks and ratings.

You can also group shots into themed collections, as we'll explain...

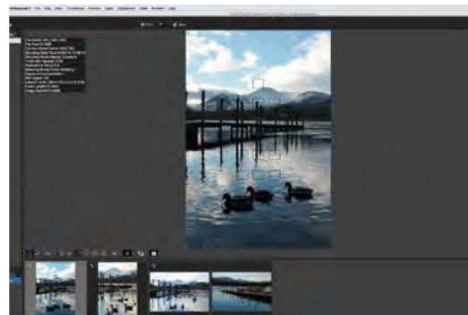
## STEP BY STEP ORGANIZE AND CHECK YOUR FILES

Follow these housekeeping tips to find favourite files faster



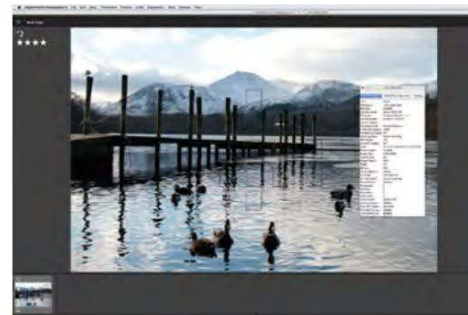
### 01 RATE A FILE

You can add a rating or check mark to a selected thumbnail by clicking the icons at the base of the workspace. Alternatively, tap any of the number keys between 1-5 to add a star rating more quickly (or tap 0 for Unrated).



### 02 CREATE A COLLECTION

Go to the Collections pane and click the Add Collection icon. Label your collection to make it easy to identify. Drag thumbnails to the collection to add them to it. Click on the collection label to display its contents in the workspace.



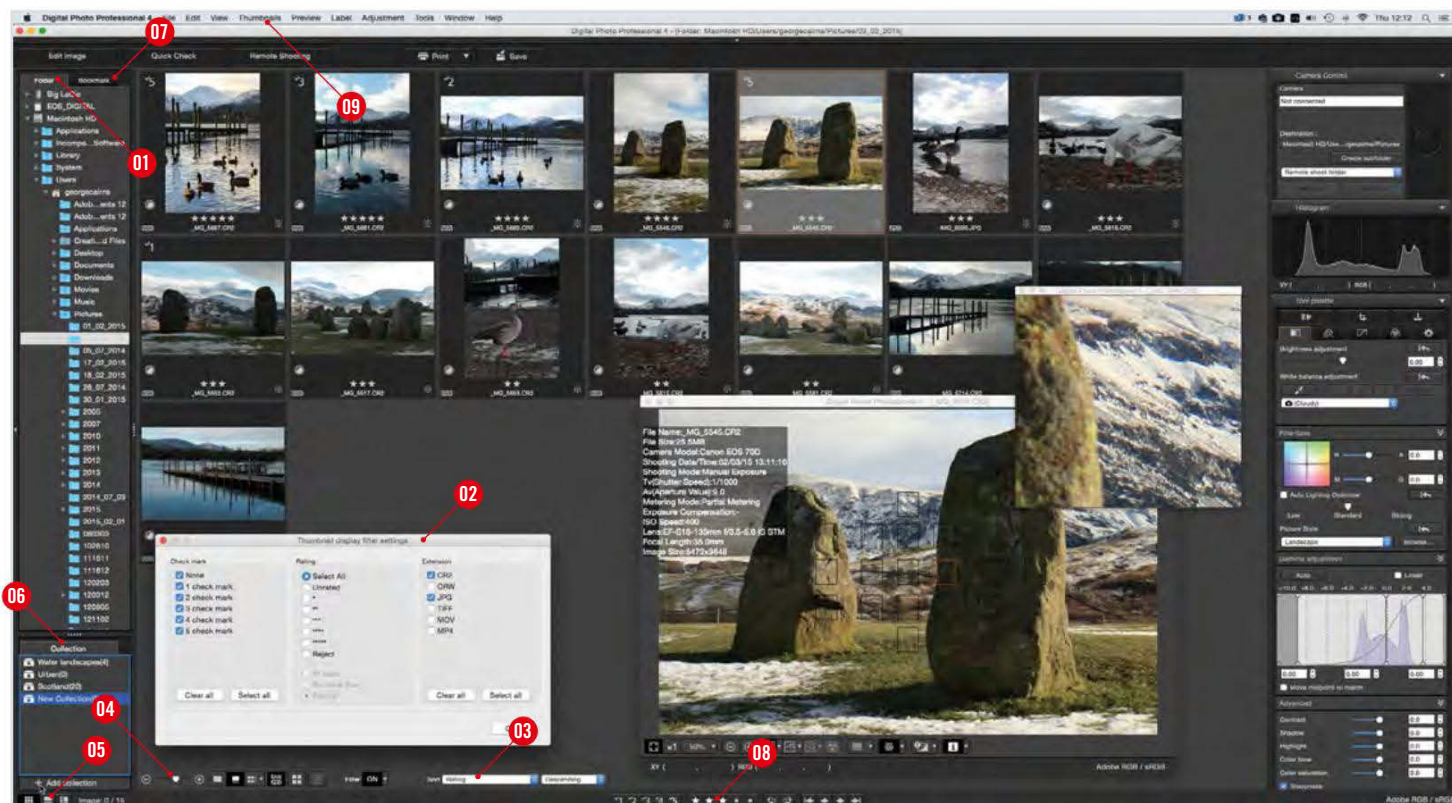
### 03 QUICK CHECK

By clicking the Quick Check icon at the top of the workspace you can enlarge a thumbnail for a better look and easier access to all the rating and check mark-assigning icons. You can also see which AF point was used to capture the image.



# GET STARTED IN DPP IMPORT AND ORGANIZE

Discover how to access Canon's DPP 4's image organizing tools, labels and filters



**01 FOLDER**  
Click on a folder to display thumbnails of its contents in DPP 4's workspace. You can drag one folder into another to rearrange them. Folders of imported photos tend to be stored chronologically, but there's lots you can do to find files faster...

**02 FILTER SETTINGS**  
You can filter the contents of a folder to display files that meet a specific criteria. For example, to only display Raw files that have been rated with 5 stars, or those displaying a particular check mark. Click the Filter fly-out icon to access the Thumbnail display filter settings window.

**03 SORT**  
To help you find files more easily you can change the way that thumbnails are displayed in DPP 4. You could choose to display the newest files at the top by choosing Shooting Date/

Time and setting the secondary dropdown menu to Descending. In our example we've decided to display the highest-rated images at the top, descending to lower rated or unrated images at the bottom. You can sort your files by a wide range of criteria.

**04 SIZE**  
To get a better look at the contents of an image, increase its thumbnail size by dragging this slider to the right.

**05 VIEWS**  
Our annotated image is in grid view. To take a closer look at a particular image, click here for a multi-layout view that displays thumbnails along the bottom, with a larger version of the selected image at the top.

**06 COLLECTION**  
Here you can create new collection folders based on any theme and then access specific files with ease. This

helps you gather photos together as you might do in an analogue photo album, making it much easier to find specific or favourite images.

**07 BOOKMARK**  
You can store your favourite folders in this pane, so you don't have to wade through dozens of folders or sub-folders in the Folder pane.

**08 CHECK MARKS & RATINGS**  
You can use these icons to add check marks or ratings to the currently selected thumbnail. You can then filter or sort the files according to check marks or ratings. Press X to mark a selected file for rejection.

**09 THUMBNAILS**  
This dropdown menu enables you to change the way thumbnails are displayed and add extra information, such as the active autofocus point used to capture each image.

## JARGON BUSTER

### CHECK MARKS

These are labels that you can assign to thumbnails after you inspect them. Eg a check mark of 5 could label a processed image.

### EXIF INFORMATION

The View>Info command displays a panel of useful data, such as the shutter speed setting and the metering mode you used to capture an image.

## Can I use DPP 4?

DPP 4.1.50 is available to all current Canon DSLR owners – 70D, 7D Mk II, 700D, 100D, 1D X, 5D Mk III and 6D, plus the 1D Mk IV, 5D Mk II and 7D. You can download it from [http://bit.ly/get\\_dpp](http://bit.ly/get_dpp) but you'll need your serial number. Check the website to see if your Canon DSLR is compatible with DPP 4.1.50 or not.



# Shoot remotely with Canon's EOS Utility 3

Tether your EOS DSLR to your PC wirelessly, so that you can shoot and import via your computer

**W**hen it comes to importing photos from a memory card, Canon's free Digital Photo Professional 4 (see page 102) works in tandem with the Canon EOS Utility. The EOS Utility has always been a standalone app, but the latest incarnation has become more integrated with DPP 4.

You can now launch EOS Utility 3 from within DPP 4, thanks to the new Camera Control panel. As well as enabling you to browse photos on a tethered camera's memory card, EOS Utility 3 also allows you to take control of your camera via cable or Wi-Fi, so that you can shoot remotely and then import your

photos into DPP 4 for editing. This double-act between EOS Utility 3 and DPP 4 enables you to streamline the shooting and importing workflow.

## Go wireless

In the step by step example below we paired a Wi-Fi-enabled Canon 70D with an iMac via the same wireless

router. This enabled us to control the Canon from the Mac without being limited by the length of a USB cable.

We'll look at how to control the settings of a Wi-Fi tethered Canon camera in more detail next issue, but check out the steps below to get to grips with the connecting, shooting and importing workflow.

01

## SELECT

Select specific photos to import from the tethered camera's memory card.

02

## QUICK PREVIEW

Turn on the Quick Preview option in Preferences to get a better look at your shots as they're importing.

03

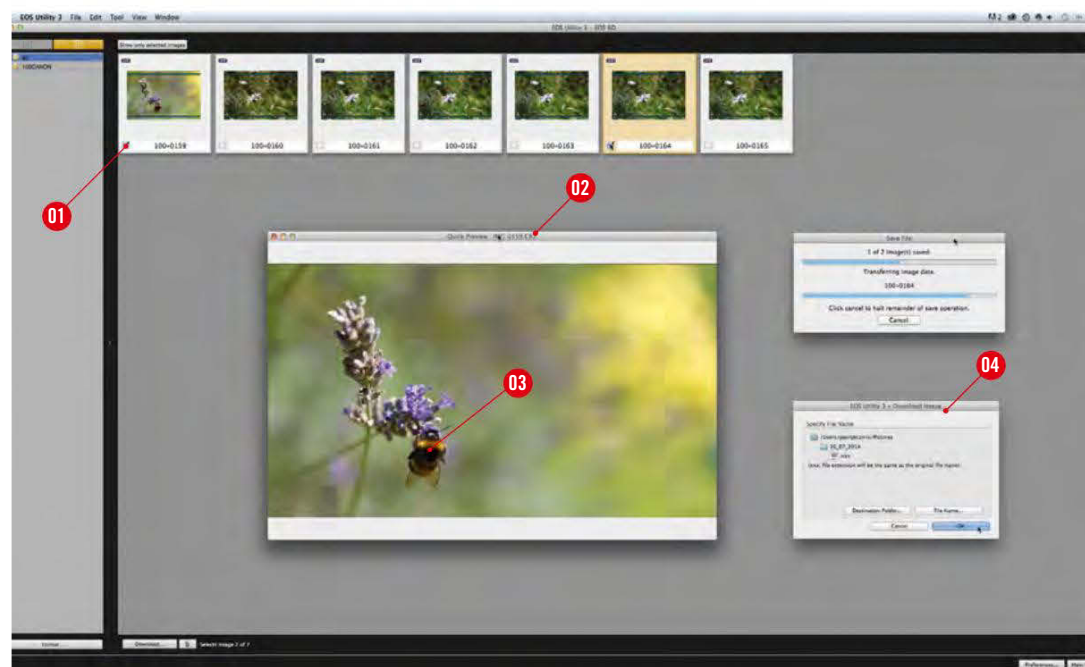
## PERFECT TIMING

By shooting wirelessly you can trigger the shutter from your PC without disturbing your subject.

04

## DOWNLOADS

Choose where you want to store images downloaded via EOS Utility 3 and change filenames, if desired.



## STEP BY STEP EOS UTILITY 3 IN ACTION

Tether a camera to your PC and control it via Canon's free software



### 01 ENABLE WI-FI

After enabling Wi-Fi on your Canon you'll need to connect it to the same wireless network used by your PC. See your camera's instruction manual.



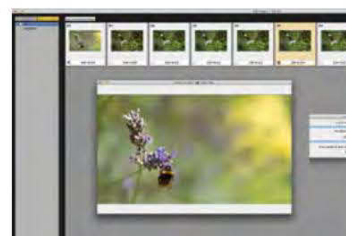
### 02 PAIR WITH YOUR PC

Once your Canon is connected to your home router, use the EOS Utility Launcher to pair the wirelessly tethered Canon with EOS Utility 3.



### 03 REMOTE LIVE VIEW

Launch EOS Utility 3's Remote Live View window from DPP 4's new Camera Control pane. We'll put Remote Live View through its paces next issue.



### 04 IMPORT

After triggering the shutter button from your PC you can browse and import specific shots wirelessly into the designated folder.



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*I completed my degree in 6 years. The program had to fit around my full time teaching job, a flexible yet focused schedule that allowed me to work on my first degree. A change in the way I relate to and experience the landscape, and seeing China through photography, was the biggest change in how and what I photograph. On top of being self-paced, and the incredible peer support, the most valuable was the relationship I built with my tutors, who guided me through personal growth and exploration.*

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# EOS S.O.S

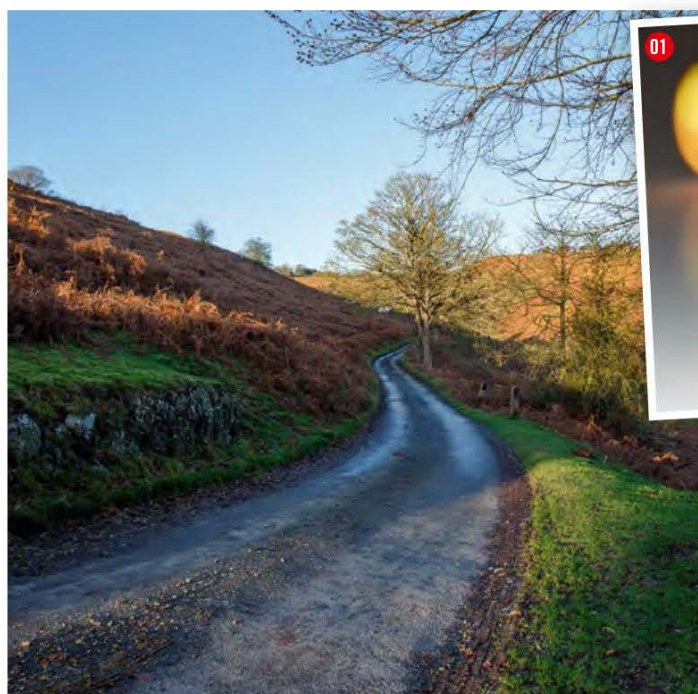
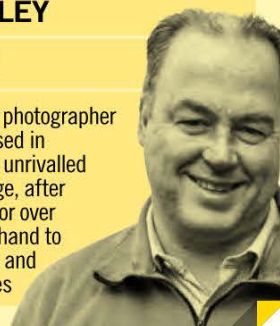
Our technical guru is here to help. No Canon conundrum is too big or small. Get in touch today at [photoplus@futurenet.com](mailto:photoplus@futurenet.com)

## PhotoPlus EXPERT

**BRIAN WORLEY**

CANON PRO

Brian is a freelance photographer and photo tutor, based in Oxfordshire. He has unrivalled EOS DSLR knowledge, after working for Canon for over 15 years, and is on hand to answer all your EOS and photographic queries



Using a narrow aperture of f/11 with a 24mm lens gives a huge depth of field to landscape pictures and limits the effects of diffraction, too

## Why do landscape photographers use apertures of f/11 or more to maximise DoF when diffraction creates softer shots?

John Fithian-Franks via email

**BRIAN SAYS...** It is true that many landscape photographers advise stopping down the aperture to maximise depth of field, and it is also true that many lenses are at their sharpest at mid-range apertures. The key is that there's a difference between depth of field and sharpness lost due to diffraction.

A photograph has a single point of focus; depth of field allows a region of acceptable

sharpness in front of and behind this point of focus. The narrower the aperture (greater the f-number), the further this area of sharpness extends. But if too narrow an aperture is chosen, the entire image becomes softer due to light rays being scattered (diffracted) by the aperture blades. So it's a compromise, but for landscapes the need for depth of field in the whole scene is most important.



Shooting multiple subjects up close, but at varying distances, with a flashgun gives uneven exposure; move the flash back for better results

## Why can't I get the same exposure for my whole family when they are at a table in a restaurant if I use a Speedlite flash?

Paul Davies via email

**BRIAN SAYS...** The light from a flash gets weaker the further it travels, this is the effect of the inverse square law. If the closest family member is a metre from the flash, then the person at two metres from the flash will receive just one quarter of the light; that's two stops less.

The key to solving this is to increase the distance the light travels from the flash to the subjects. If you step back and take the picture three metres away from the closest subject, then the subject at four metres will be less than one stop darker. Alternatively, bounce the flash off a wall behind you or the ceiling to increase the distance that the light travels to even out the

difference in exposure.

To illustrate this, I've photographed a pair of apples. In the first shot, the flash is placed at a distance equal to the distance between the two apples. Light falls off by two stops due to the inverse square law, as double the distance is one quarter of the power. In the second shot, I've doubled the distance between the light and the front apple, which reduces the flash fall off on the rear apple. In the third shot, bouncing the flash from the ceiling significantly increases the distance that the light travels from the flash to the subjects, resulting in both apples being lit much softer and, therefore, more evenly.





Car rallies often enable you to get closer to the action than circuit races, and a 70-300mm lens is ideal for rally action pictures

## Should I swap my Tamron 18-270mm for a Tamron 70-300mm f/4-5.6 VC and Sigma 17-50mm f/2.8 OS?

Gareth Thompson via email

**BRIAN SAYS...** Two lenses that cover the same range as your current one might seem like a strange switch, but both lenses you are considering are much better performers than your current lens, particularly as you shoot motorsports.

The Sigma 17-50mm has a fast maximum aperture; this will help you take photos in the pits and paddock, using the shallow depth of field to isolate your subjects from the surroundings. Your camera will automatically use the higher precision AF points with the f/2.8 aperture lens. The Tamron 70-300mm offers marginally increased reach with faster apertures through out the range. The 4-stop stabilizer will help to deliver shake-free images and the AF will be faster.

## Can I use a UDMA 7 CF card in my 7D, and should I format new cards?

David Elder via email

**BRIAN SAYS...** The EOS 7D was introduced in 2009, but UDMA 7 cards were not standardized until later in 2010. A Canon firmware update for the 7D added support for UDMA 7 cards, so it pays to ensure your camera has the latest firmware (download it from <http://bit.ly/7Dfirmware>) if you have trouble with cards. New memory cards should always be formatted

in-camera; this ensures any folders are created in the way that the camera expects. It's good practice to format your cards after you have transferred images to your computer. Putting the Format Card function under My Menu ensures it's easy to find.



## QUICK FIXES

### How do I stop AF points showing when reviewing pictures?

Barry Eaton (email)

**BRIAN SAYS...** Most mid-range and advanced EOS cameras have the option to display the active or selected AF points as an overlay on pictures on the camera LCD. If they are not required they can be switched off by selecting AF Point Disp. and setting it to Disable in the blue tabbed camera menu.

### I have a 1200D and kit lens, what inexpensive second lens should I get?

Tina Marr, Co. Down, NI

**BRIAN SAYS...** Many photographers choose a telephoto zoom as their second lens. A 55-200mm focal length is ideal, and will make distant subjects much larger in your pictures. It is worth splashing out a little more for a lens with image stabilization to reduce camera shake.

### Can I auto meter with an ND filter?

Jack, Vancouver, Canada

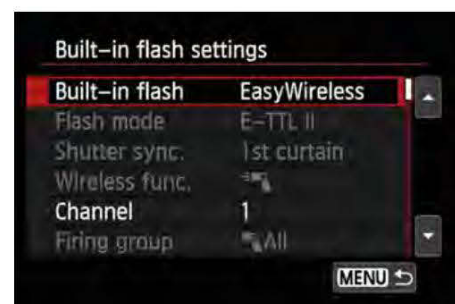
**BRIAN SAYS...** Yes you can use auto exposure and metering with an ND filter. The camera meters using an exposure sensor in the pentaprism (or the image sensor, when using Live View mode). Since both the metering sensor and image sensor 'see' the light that comes through the lens, they automatically adjust the exposure to take account of the ND filter.



## I've switched from a Windows PC and Elements 11 to an iMac. What photo software should I use?

Neil Flemming via email

**BRIAN SAYS...** Moving from one computer system to another can be a challenge. As you have experience with Photoshop Elements on the PC, sticking with Elements on the iMac makes sense. You'll need to convert the Elements 11 catalogue and move it to your iMac, then import it into Elements 13. You'll also need to move the photos to the Mac environment and may need to reconnect them in Elements 13.



EasyWireless makes it simple to control off-camera slave flashes from your Canon

## Can I use the Speedlite 270EX II with my 600D?

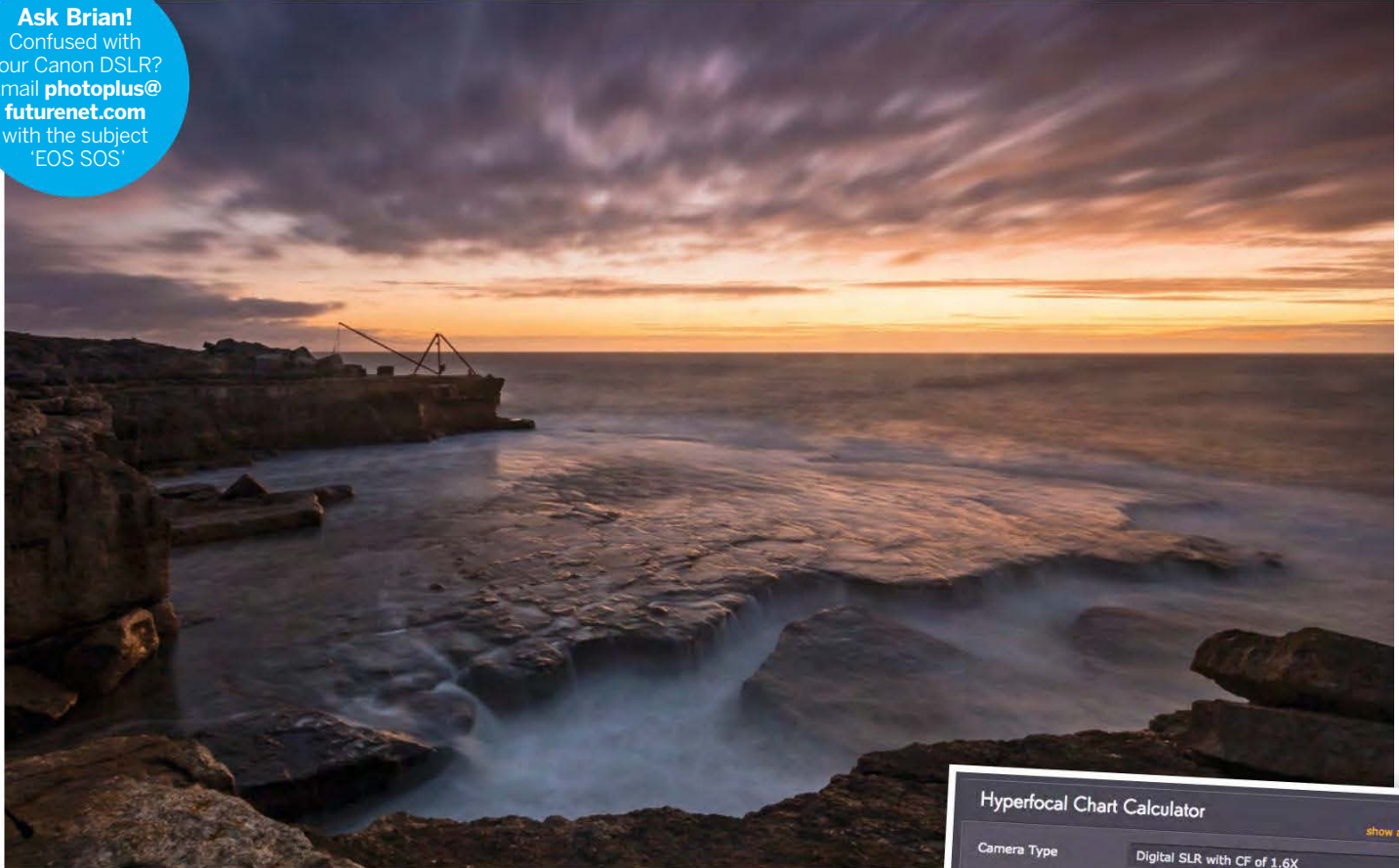
Michael Azzopardi, Australia

**BRIAN SAYS...** The Speedlite 270EX II is a good match for the 600D. It's a simple flash with few controls, but offers almost double the power of the camera's built-in flash. Select the camera's Flash Control menu to access the full capabilities of the flashgun.

The EOS 600D introduced the EasyWireless feature; set this and set the flash switch to the Slave position. The camera will control the Speedlite 270EX II off-camera automatically, using optical wireless control.



**Ask Brian!**  
Confused with  
your Canon DSLR?  
Email [photoplus@  
futurenet.com](mailto:photoplus@futurenet.com)  
with the subject  
'EOS SOS'



# Stay focused

Ensure your landscape shots are pin-sharp, from front to back

**I**n the March issue (*PhotoPlus* 97) we explained a how to optimize depth of field in landscape shots. Reader Mike Urquhart from Essex wrote to ask for more advice about where is the best place to position the point of focus.

Depth of field is the area that is acceptably sharp in front of and behind the point of focus. The saying goes that, to maximize sharpness, you should focus on a point roughly 'one-third into' the scene. This is due to the fact that depth of field approximates to two-thirds behind the point of focus and one-third in front. But finding the point that is one-third into the scene is a challenge in itself.

There is another way to maximize the depth of field using the hyperfocal distance. The hyperfocal distance is the distance at which to focus the lens to ensure that the far limit of the depth of field extends to infinity. If you focus the lens closer than this the far background

will not be maximally sharp. If you focus the lens further than the hyperfocal distance then you reduce the sharpness of subjects in front of the point of focus.

## Getting hyper

Hyperfocal distance is calculated using complex formulas involving the focal length, aperture and the sensor size. As an example, a 24mm lens at f/8 on a full-frame camera has a hyperfocal distance of 2.3 metres. Fortunately there are several smartphone apps and online resources (try [www.cambridgeincolour.com/tutorials/hyperfocal-distance.htm](http://www.cambridgeincolour.com/tutorials/hyperfocal-distance.htm)).

While the hyperfocal distance is a great indicator of where to focus, other factors may require the lens to be focused closer or further away than the hyperfocal distance would indicate. If your scene has an element of foreground detail that is key to the composition, consider focusing closer than the

**Hyperfocal Chart Calculator** show advanced

Camera Type: Digital SLR with CF of 1.6X

**CALCULATE HYPERFOCAL DISTANCES**

Note: CF = "crop factor" (commonly referred to as the focal length multiplier)

	16 mm	24 mm	35 mm	50 mm	85 mm	135 mm	200 mm
<b>f/2.8</b>	4.6 m	10.3 m	21.9 m	44.6 m	129 m	325.4 m	714.3 m
<b>f/4.0</b>	3.2 m	7.2 m	15.3 m	31.3 m	90.3 m	227.8 m	500 m
<b>f/5.6</b>	2.3 m	5.1 m	10.9 m	22.3 m	64.5 m	162.7 m	357.1 m
<b>f/8.0</b>	1.6 m	3.6 m	7.7 m	15.6 m	45.2 m	113.9 m	250 m
<b>f/11</b>	1.2 m	2.6 m	5.6 m	11.4 m	32.8 m	82.8 m	181.8 m
<b>f/16</b>	0.8 m	1.8 m	3.8 m	7.8 m	22.6 m	57 m	125 m
<b>f/22</b>	0.6 m	1.3 m	2.8 m	5.7 m	16.4 m	41.4 m	90.9 m
<b>f/32</b>	0.4 m	0.9 m	1.9 m	3.9 m	11.3 m	28.5 m	62.5 m

You can calculate hyperfocal distances using a different definition for "acceptably sharp" by using the "show advanced" feature. Just modify the eyepiece, viewing distance and print size parameters from their default settings. However, keep in mind that this will require a much higher f-stop, or focusing further away than otherwise.

## There are lots of online hyperfocal distance calculators, or use a smartphone app

hyperfocal distance and allowing the far background to be rendered less sharp. If the background is key and there is little of interest in the foreground, focusing beyond the hyperfocal distance will sharpen up the far background.

Landscape photographers often choose a really narrow aperture to maximize the depth of field, such as f/16, but this can create another problem, with diffraction leading to softer results. Many lenses perform at their best when used at f/8 to f/11, and get softer either side of these apertures. Canon's Digital Photo Professional software has a Digital Lens Optimizer (DLO) function that counteracts much of the diffraction effect when Canon lenses are used.



## What teleconverter can I use with my Tamron 18-270mm f/3.5-6.3? My local camera shop told me that nothing was compatible with my lens – why not?

David Ashford, Malmesbury, Wiltshire

### BRIAN SAYS...

A Teleconverter (or 'Extender', as Canon calls them) is an optical element that goes between the camera body and lens, multiplying the focal length by a factor of 1.4x or 2x.

Doubling the focal length of your lens for relatively little weight in your camera bag sounds like a good idea, on the face of it. It's much cheaper to get a 70-200mm lens and a 2x teleconverter than to buy a 400mm lens.

But there are limitations. Canon Extenders have a protruding tube on the front that fits inside the rear of the lens, ensuring there is a good light seal to minimize internal reflections. It makes Extenders physically incompatible with a large number of lenses, and they only work with Canon prime lenses over 135mm and some telephoto zooms.

Some third-party teleconverters lack the tube on the front and fit a wider range of lenses, but even so your Tamron lens is designed for use exclusively on cameras with APS-C size



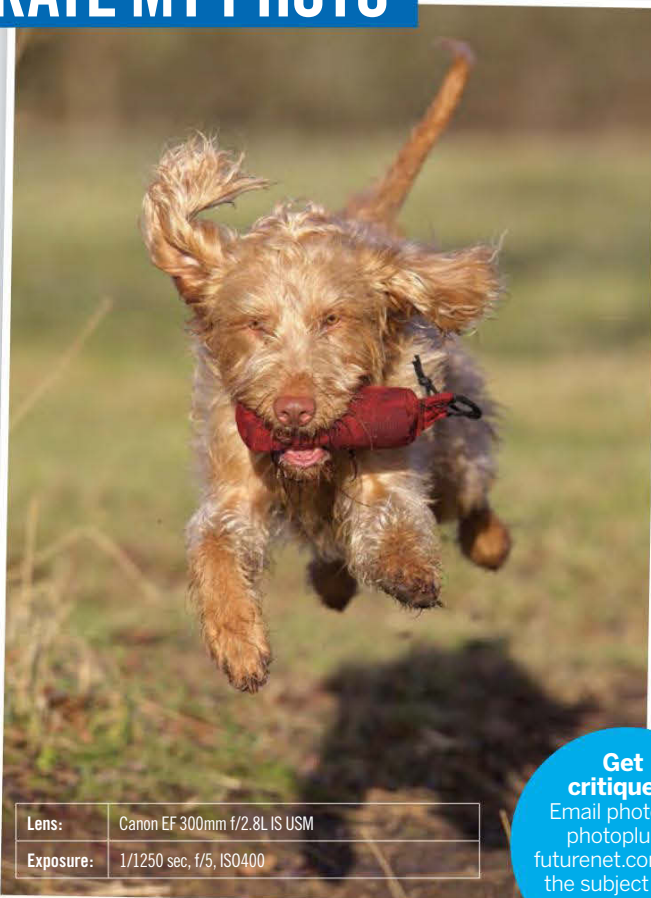
A teleconverter increases your reach, but only with some lenses

sensors. As such, the rear of the lens fits further back in to the camera body, unfortunately this also restricts the use of a teleconverter. Furthermore, the magnification reduces the effective aperture of your lens by one stop for a 1.4x teleconverter and by two stops for a 2x teleconverter. Your lens has an aperture of f/6.3 at 270mm, using a 1.4x extender would reduce this to f/9 and a 2x extender would reduce it to f/13. At such apertures your DSLR won't be able to autofocus.



This fox was shot with a 70-200mm f/2.8L lens and 2x Extender

## RATE MY PHOTO



Lens:	Canon EF 300mm f/2.8L IS USM
Exposure:	1/1250 sec, f/5, ISO400

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Email photos to [photoplus@futurenet.com](mailto:photoplus@futurenet.com) with the subject 'Rate My Photo'

## Hector by Ian Jones

**IAN SAYS...** "I used my Canon EOS-1D Mark IV in Manual exposure mode, setting a 1/1250 sec shutter speed and f/5 aperture. I used Auto ISO and the picture came out at ISO400.

I use this setup for bird and wildlife photography. It was a bit of a challenge having Hector with me, so I turned my attention to trying to get a shot of him jumping over a ditch, with the early morning sun behind me. I had to throw his toy and race to get back in position to take the photo – it proved quite an exercise, for me and the dog!"

**BRIAN SAYS...** This is a great action shot of the dog enjoying playing with his favourite toy. It helps

that the toy is dark red as this draws my eye right to the centre of the frame.

A fast shutter speed of 1/1250 sec has frozen Hector in midair, and the shadow emphasizes his height off the ground. Using a long lens gives a characteristic limited depth of field, even at f/5, separating the dog from the background nicely. Ian has really hit the mark with the focus; the dog's eyes are critically sharp.

Darkening the edges of the frame would improve the picture, as the colours are all very similar in tone and brightness. I'd also be tempted to remove the long grass stalk on the left-hand side of the frame.



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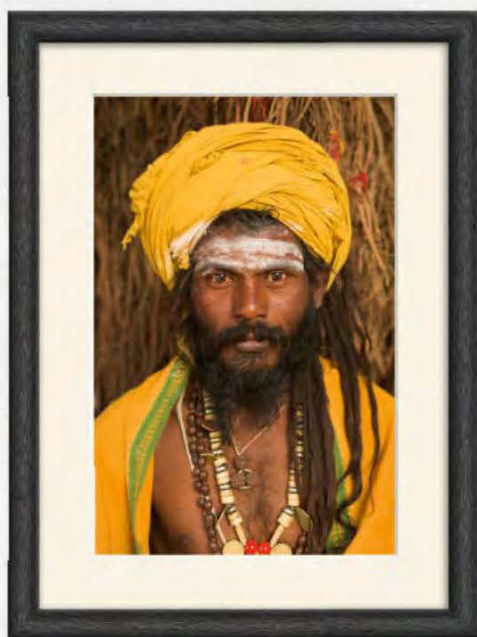
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# G E A R

*The latest Canon DSLR and photo gear tested.  
Independent advice to help you buy smarter*



Angela Nicholson  
Head of testing  
angela.nicholson@futurenet.com

## Welcome...

**WELCOME** to the bigger and better *PhotoPlus* Gear section. While our tests have always been tough, we're now backing them up with our in-depth lab results – where we test lenses for a variety of factors, including sharpness, distortion and colour fringing, then crunch the numbers into easy-to-read graphs so you can quickly see how products compare. Just as important is how kit performs in the real world, and everything is fully field-tested, too. Our wide-angle prime lens Super Test is the first beneficiary of this rigorous new regime, while our test of the Canon EF 100-400mm super telephoto zoom also gets the hard-data treatment.

Also new to the Gear section is our Mini Test, kicking off with wireless flash triggers that enable you to use your Speedlite off-camera and get really creative with your shots.

Our revamped Gear Update brings you the latest new kit, while our new in-depth Buyers' Guide gives you essential info on the entire EOS DSLR range, plus every currently available Canon-fit lens.

### PAGE 120 WIDE-ANGLE PRIME LENSES



### PAGE 118 CANON EF 100-400mm Mk II



### PAGE 116 REMOTE FLASH TRIGGERS



## TESTS & AWARDS

**WHEN IT** comes to testing Canon DSLRs, lenses, photo gear and services in *PhotoPlus*, we tell it like it is. We're 100% independent and we use our in-depth lab tests to find out how kit really performs and compares. Here are our main awards...



Buy for the best combination  
of quality and value



Only the best of best win  
our coveted award



# GEAR UPDATE



# GEAR UPDATE

Our round-up of the latest digital photography must-haves





**01 Lomography Petzval**

A retro lens that performs like no other

**£459/\$540**<http://microsites.lomography.com/petzval-lens>

**THE CROWD-FUNDED** reinvention of the Victorian Petzval lens a joint venture between Lomography and Russian optical specialists Zenit. The distinctive image style of pin-sharp centres surrounded by swirling bokeh blur has been successfully reproduced and the 85mm focal length is ideal for portraiture. Available in brass or black finish, the wide (f/2.2) maximum aperture can be stopped down to f/16 with the aid of separate diaphragm inserts. The rack-and-pinion focusing mechanism, however, proves rather awkward to use when handholding a camera.

**02 ProMediaGear Katana**

Solid support and freedom of movement with this heavyweight gimbal head

**£617/\$750**[www.cameraclean.co.uk](http://www.cameraclean.co.uk)

**GIMBAL HEADS** may seem like specialist kit, but the simple design can make a massive difference to the quality of your sports and wildlife images. A gimbal simply takes the weight of your equipment, while still enabling free movement. This is a high-end example, featuring metal construction and bearings that ensure smooth movement. Every element is of high quality, even down to the twist locks that shut off the rotation and vertical movements. If you've invested in a large zoom lens, such as the Sigma 120-300mm f/2.8, then the premium you pay for the Katana over a cheaper gimbal will be well worth it.

**03 Manfrotto 190 Go**

Manfrotto's stalwart 190 series tripod gets a lightweight compact makeover

**£159/\$199**[www.manfrotto.com](http://www.manfrotto.com)

**THE FOUR-SECTION** 190 Go is a new compact take on the popular 190 series tripod. It brings the latest tripod innovation and design that has filtered through from the compact travel BeFree series. This reduces the size to 45cm when packed down, compared with the Classic 190 XPRO4's 49cm, and also loses 400g in weight, tipping the scales at just 1.7kg. The Go is slightly shorter at a maximum height of 146cm compared with the conventional

190 four-section at 160cm. There's also a change from lever to twist leg locks, which lock firmly in place, and the centre column can be rotated through 90 degrees.

**04 Nissin Di700A + Air 1**

Extend your creativity in a flash with this wireless hotshoe system

**£240/\$299**[www.nissindigital.com](http://www.nissindigital.com)

**THE NISSIN** Di700A + Air 1 is a strobe and 2.4GHz wireless flash kit that uses Nissin's new NAS (Nissin Air System) to enable flash and camera to work wirelessly. The system is fully E-TTL compatible; this means that, even when the flash is off-camera, the wireless transmitter that slots into the hotshoe communicates with the flash as if the flash was mounted directly on the camera. The flash is rated at GN54 (m/ISO100) and there are E-TTL and manual modes, as well as high-speed sync of 1/8000 sec. Further flashes can be added and controlled through the one transmitter in up to three separately controlled groups.

**05 Breakthrough Filters X3 ND**

Take it really slow with this 10-stop ND filter

**From £95/\$139**<http://breakthrough.photography>

**BREAKTHROUGH FILTERS** has already launched a successful high-quality 6-stop ND filter, and now joining this is an all-new 10-stop version. Placing this in front of your lens will extend a 1/500 sec exposure to 2 secs, enough to smooth clouds and water, even on a bright sunny day.

**06 Westcott Flex**

Wrap your subjects in LED light with this ingenious flexible lighting panel

**£550/\$599**[www.fjwestcott.com](http://www.fjwestcott.com)

**EVERY SO** often a new product arrives that helps to change the way we think about lighting. The Flex is a flexible lighting system, in essence a piece of malleable material with 256 bright LEDs attached. There are two versions: a Tungsten and a Daylight option, which produce 1600 and 1900 lux respectively. Both feature a dimmer that controls the power from 5% through to 100%. A mount is also included along with a diffuser, but the main fun will come from freeforming the Flex into shapes to create different lighting effects.



# Wireless flash triggers

Get creative with lighting and free your flashgun with one of these remote systems

**T** **HERE'S** only so much you can do to spice up your lighting when your flashgun is mounted to your camera. Freeing it has traditionally been the job of the good old off-camera flash cord, but with a range usually limited to about three metres, it's not an ideal solution.

Going wireless is a much better bet. Not only does a decent radio-frequency trigger offer at least 100 metres of range, you can often use a single transmitter to control multiple flashguns

separated into several groups. It's great for replicating a studio flash head setup, with separate key, fill and accent lights, although you may need to fork out for extra receivers or specific flashguns to create a multiple flash setup.

Another thing to bear in mind is that unlike a simple cord, which enables all flashgun functions, many midrange wireless triggers can't transmit TTL metering signals. Consequently, you may have to resort to manual flash power control, which can be fiddly. **PP**

## FIVE THINGS TO LOOK OUT FOR

From TTL compatibility to sync speed, choosing the right flash triggering system can be a tricky business

### 01 Wireless range

All the kits we've featured use radio frequency triggering, which unlike lesser infrared systems, usually provides upwards of a 100m range, without needing a direct line of sight.

### 02 Channel settings

Radio frequency transmission is great for range, but it's prone to interference from other RF devices. Make sure the system you choose addresses this with multiple channel options.

### 03 Through-the-lens (TTL) triggering

A triggering system that wirelessly transmits TTL metering signals is a must if you rely on the fire-and-forget simplicity of a TTL flashgun, but it's a trick that doesn't come cheap. Canon's TTL variation is E-TTL II.

### 04 Remote control

Instead of running between multiple flashguns to set their power, advanced transmitters let you control flash output from your camera.

### 05 Transmitter/receiver or transceiver?

Some flash triggers come as a transmitter/receiver pair, while others are interchangeable 'transceivers' that both transmit and receive – and are generally sold singly, so you'll need to buy two (or more) units.



## Cactus V6

£50/\$70 [www.cactus-image.com](http://www.cactus-image.com)

★★★★★

**CONTROLLING** multiple flashguns from one receiver is great for creative lighting effects, but not everyone is lucky enough to own a selection of flashguns from the same brand. The clever thing about the Cactus is that it will simultaneously control a range of different flashguns, including Canon, Nissin and Sigma models.

You'll need two V6 units to get started, which makes the combined price slightly less appealing. However, the system does offer an excellent 100+ metre range and the ability to manage

four flash groups over 16 possible channels. There's also a simple but speedy control system with a backlit LCD screen, plus an on-board hotshoe mount, which offers TTL pass-through.

## PhotoPlusVERDICT

**PROS:** Cross-brand flashgun and camera compatibility

**CONS:** Won't wirelessly transmit TTL metering signals

**WE SAY:** If you've got a mix of flashguns, this is the triggering system to buy



## Hähnel Viper

£160/\$250 [www.hahnel.ie](http://www.hahnel.ie)

★★★★★

**THE VIPER** will control up to three groups of flashguns via its impressive 2.4GHz radio frequency range. Unlike the other systems here, there's no choice of channels, as Hähnel uses an automatic Digital Channel Matching system to connect the transmitter to each receiver without interference.

Setup and operation are a cinch using the control wheel and clear, backlit LCD screen. There's even a manual override for setting a flashgun's power independently of the Viper. Build quality is good, with metal hotshoe mounts all round.

The only major flaw in the Viper system is that it can't wirelessly transmit TTL signals. However, its ability to provide remote power control over multiple flashguns makes it a tempting package for the money.

## PhotoPlusVERDICT

**PROS:** Remote power adjustment and auto channel adjustment

**CONS:** No wireless TTL transmission available

**WE SAY:** A good midrange option for Canon users





## Calumet Quad Plus

£75/\$118 [www.calphoto.co.uk](http://www.calphoto.co.uk)



**UNLIKE** pricier triggering systems, the Quad Plus has to make do without a fancy LCD control panel and it doesn't have wireless TTL capabilities. Even so, build quality is very good and there are metal hotshoe mounts, including one atop the transmitter that enables TTL pass-through.

The Quad Plus can control four groups of flashguns over four channels, and thanks to its radio frequency system, you can be up to 150m from your flashguns and still stay in control. The Canon version of the Quad Plus uses a simple

button and switch control system that's effortless to use. And as a bonus, the Quad Plus can also be used as a wired or wireless remote camera shutter release with cables included to operate most models.

### PhotoPlusVERDICT

**PROS:** Extensive wireless range with control over multiple groups

**CONS:** Lacks wireless TTL transmission. No remote power adjustment on offer

**WE SAY:** A capable kit that nails the basics for a reasonable price



## Phottix Odin TTL

£250/\$280 [www.phottix.com](http://www.phottix.com)



**THIS** setup is far from cheap, but you do get a lot of bang for your buck. It immediately impresses with a large LCD panel, similar to what you'd find on a high-end flashgun. This gives you control over three separate groups of flashguns in four frequency channels with A:B ratio adjustment, plus it allows you to set their flash head zoom controls and power.

The Odin will wirelessly transmit TTL signals and it can be configured to control one flashgun group manually while another uses TTL. It's also one of the few

triggering systems to support high-speed sync capabilities, while a 2.4GHz radio frequency link boasts a 100+ metre range. There's even a USB port to enable fuss-free firmware updating.

### PhotoPlusVERDICT

**PROS:** Feature packed, well-built and easy to control

**CONS:** The menu interface isn't the fastest to navigate. No flashgun pass-through

**WE SAY:** Great performance and versatility that's worth every penny



## Canon ST-E3-RT

£239/\$264 [www.canon.co.uk](http://www.canon.co.uk)



**CANON'S** flagship Speedlite 600EX-RT makes controlling multiple flashguns a breeze with its built-in 2.4GHz radio frequency remote triggering system. The ST-E3-RT uses the same tech and control layout as the 600EX-RT.

This means you get a 30m wireless range and features galore. Up to 15 flashguns can be controlled over five groups and there's full wireless E-TTL II support. It's a lot to learn, but the large display is a pleasure to use. Great build quality and weather sealing also impress, but there are

drawbacks. With no companion receivers or optical triggering option, the ST-E3-RT will only trigger pricey 600EX-RT flashguns. You'll also need a post-2012 camera to unlock all the group triggering features.

### PhotoPlusVERDICT

**PROS:** Great performance with extensive customization

**CONS:** Relatively short range. Only works with the 600EX-RT

**WE SAY:** Terrific triggering, but forces you to upgrade flashguns



## PocketWizard TT1, TT5 & AC3

£360/\$500 [www.pocketwizard.com](http://www.pocketwizard.com)



**POCKETWIZARD** is a name that carries kudos in this sector, and it's easy to see why with this pro-level combo. The MiniTT1 will transmit Canon E-TTL metering signals to one or more FlexTT5 receivers over a huge 240-metre range, or up to a practically pointless 365 metres with basic triggering.

Like the Phottix system, there's full high-speed sync functionality with compatible flashguns, allowing for shutter speeds up to 1/8000 sec. You can tweak this and other settings using the PocketWizard Utility software.

The AC3 ZoneController lets you control your flashguns with ease, grouping them in different zones, but it pushes the combined price to a level that's hard to justify over the similarly specced and better-built Phottix system.

### PhotoPlusVERDICT

**PROS:** Full compatibility with high-end flashgun features

**CONS:** Cost, underwhelming build and plastic hotshoe mounts

**WE SAY:** A top-notch system, but it's starting to look overpriced





## CANON EF 100-400mm f/4.5-5.6L IS II USM

Canon's new EF 100-400mm Mark II telephoto zoom lens gets the new *PhotoPlus* lab test treatment...

**A** 100-400mm lens is a versatile option for shooting faraway sport or wildlife. It might not have the wider maximum f/2.8 aperture of a top-pro optic, but this zoom's smaller, variable aperture makes it smaller, lighter and much more affordable. All this combined to make Canon's original EF 100-400mm f/4.5-5.6L IS USM a popular choice with bird, airshow and field-sport enthusiasts. However, the trombone-style (push-pull) zoom mechanism on this Mark I lens, first launched in 1998, was showing its age and many found it awkward to use.

The new EF 100-400mm f/4.5-5.6L IS II USM has a more conventional design, with a deep, stepped zoom ring towards the front of the lens and a narrower

focus ring towards the mount. A third ring, just in-front of the focus ring, travels through 45 degrees and allows a smooth-tight adjustment of the zoom ring, it clicks into position at the 'smoothest' end point. At its tightest point the zoom ring feels almost locked, but it is moveable. At the smoothest end, the zoom ring is loose, but not sloppy and can be moved with one finger allowing for quick, easy adjustments in framing. However, it also occasionally

No more trombone action – the new Mark II super-telephoto zoom has a regular twist-control for powering through its 4x focal length

The 100-400mm almost doubles in length as it extends to its maximum telephoto setting

extends when pointed downwards, so it may be advisable to switch the zoom ring to its tightest setting when carrying the lens between shots to avoid lens creep.

The Mark II version of this chunky all-metal lens focuses much closer than its predecessor, giving a

### SPECIFICATIONS

**FULL-FRAME COMPATIBLE** Yes

**EFFECTIVE FOCAL LENGTH**

With APS-C sensor: 160-640mm

With full-frame sensor: 100-400mm

**IMAGE STABILIZER**

4-stops, Modes 1, 2 and 3

**MINIMUM FOCUS DISTANCE** 0.98m

**MAX MAGNIFICATION FACTOR**

0.31 (at 400mm)

**MANUAL FOCUS OVERRIDE** Yes

**FOCUS LIMIT SWITCHES**

AF full or 3m-infinity

**INTERNAL ZOOM** No

**INTERNAL FOCUS** Yes

**FILTER SIZE** 77mm

**IRIS BLADES** 9 (rounded)

**WEATHER SEALS** Yes

**SUPPLIED ACCESSORIES**

Lens cap (E-77II)m lens hood (ET-83D),

lens case (LZ1326), rear cap (E)

**DIMENSIONS (DIA X LENGTH)** 94x193mm

**WEIGHT** 1640g without tripod mount







magnification ratio of around 1:3 at 300mm (compared to 1:5 found on the first-generation model).

This lens is designed for use on full-frame cameras, but gives extended reach when used on a crop-sensor DSLR (its effective focal length becomes 160-640mm).

## Performance

As you would hope with a Canon L-series lens, the 100-400mm Mk II focuses quickly and accurately, producing sharp images with lots of detail. It's also remarkably quiet, which is useful for a lens that may be used to photograph timid wildlife. The optical Image Stabilizer works well and has a

considerable steadying effect in the viewfinder in Modes 1 and 2.

Our lab tests show the lens is sharpest at around the 200mm point but it puts in a good performance at both extreme ends of the zoom range. Apart from at the 100mm point, which is sharpest at f/4.5, an aperture of f/5.6 produces the sharpest results, but the results are still good at f/8.

This wide aperture performance is helpful with a lens that will be used in situations where you regularly need to blur the background or get the fastest shutter speed possible. Fringing is controlled very well and distortion is well within acceptable limits. **PP**

## FEATURES

**01** The tripod collar is fixed, but its foot is removable.

**02** This adjusts friction of the zoom ring.

**03** This limits the focus range – useful when shooting in crowds.

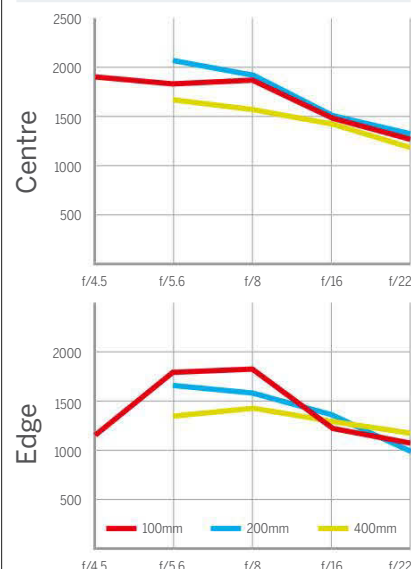
**04** Image stabilization has three modes; Mode 1 is for standard shooting while modes 2 and 3 are for use when panning, with mode 3 only applying IS when the release is fully pressed.

**05** A fluorine coat on the front element repels water drops.

**06** Canon's multi-layer Air Sphere Coating protects against flare and ghosting.

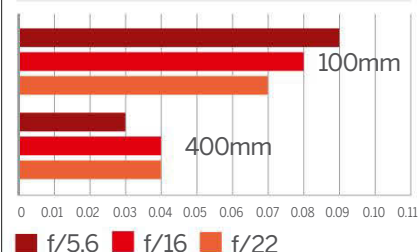
**07** Fluorite and Super Ultra-low Dispersion (Super UD) lens elements boost sharpness and minimize distortion.

## SHARPNESS



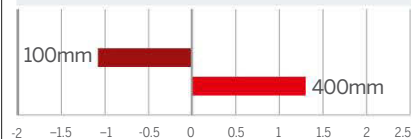
**This is a lens that's designed to perform wide open, where it will be mostly used**

## FRINGING (AT EDGE)



**Very low amounts of fringing at edges of field compared to rival super-telephotos**

## DISTORTION



**Slight barrel distortion at 100mm end and slight pincushion distortion at 400mm**

## PhotoPlusVERDICT

**A WORTHY** successor to the original 100-400mm f/4.5-5.6L, this lens is a great optic for sport and wildlife photographers who need greater reach than the popular 70-200mm. Make room in your kit bag...

### FEATURES



### BUILD & HANDLING



### IMAGE QUALITY



### VALUE



### OVERALL

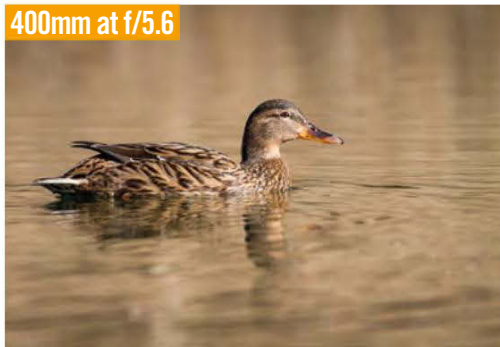


100mm at f/5.6



**Shooting at 100mm enables you to capture 'wider' photos to show your subjects in their surroundings**

400mm at f/5.6



**Zooming in at 400mm means you can fill the frame with faraway subjects, and really blur surroundings**





## THE CONTENDERS



Canon EF 20mm  
f/2.8 USM  
£410/\$540



Canon EF 24mm  
f/2.8 IS USM  
£460/\$600



Canon EF-S 24mm  
f/2.8 STM  
£170/\$150



Canon EF 28mm  
f/2.8 IS USM  
£410/\$550



# WIDE PRIME LENSES

*Ditch the blinkers and take a broader view of the world, or maintain your perspective and take a step up in quality. Here are the choices...*

**W**ide-angle prime lenses are surprisingly versatile optics that cater to a variety of different needs. For those with full-frame cameras, like the 6D and 5D Mk III, the Canon EF 20mm offers a wider angle of view than a standard zoom lens, like a 24-70mm or 24-105mm. Meanwhile, 24mm, 28mm and 35mm lenses deliver some of the same angles of view that are served up by most standard zooms, but often with a 'faster' or wider available aperture.

The lenses in this test group are equally attractive to those of us with APS-C format Canon DSLRs, like the 70D and 7D Mk II, with their physically smaller image sensors and 1.6x crop factor. On these cameras, a 28mm or 35mm prime lens will give an effective focal length of 44.8mm or 56mm respectively. This makes them ideal as a relatively fast, standard prime lens with a natural perspective. Indeed, the APS-C-specific Sigma 30mm DC lens gives an effective 48mm focal length, which is almost identical to the 50mm standard in full-frame photography. The tiny Canon EF-S 24mm pancake lens is also designed exclusively for APS-C format bodies, with a shorter 38.4mm effective focal length for a wider viewing angle.



**Canon EF 35mm  
f/2 IS USM**  
£470/\$600



**Samyang 35mm  
f/1.4 AS UMC**  
£370/\$420



**Sigma 30mm  
f/1.4 DC HSM A**  
£370/\$500



**Sigma 35mm  
f/1.4 DG HSM A**  
£650/\$900



# CANON EF 20mm f/2.8 USM £410/\$540

It's a real old-timer compared with other lenses in the group, but still has a lot to offer

**W**hereas all the other lenses on test have come to the market over the past three years or so, this one dates back all the way to 1992. Of all the Canon lenses in the group, it's physically the largest and heaviest (78x71mm, 405g), and of those that are compatible with full-frame cameras, it's the only Canon to lack image stabilization. It also has just five diaphragm blades, whereas all the other lenses on test have between seven and nine. When stopping down a little from f/2.8, defocused highlights can take on a noticeable five-sided shape.

A more positive standout feature is that this lens has the outright widest viewing angle of any lens on test. It's very noticeably wider than that of 24mm lenses, on full-frame and APS-C bodies alike.

## Performance

The lab test score (page 123) for distortion is the best of any lens in the group, at -0.49 on a full-frame body. However, the

shape of the distortion is quite irregular, with a noticeable 'moustache' profile. On an APS-C body, the lens gives a worse test result of -1.31 but the barrel shape is more regular and easier to correct during editing. Sharpness at the centre of the frame is very respectable, although it falls off more than with most other lenses towards the edges and corners, where colour fringing is also a little more noticeable. Autofocus is fast and quiet, matching the performance of more recently designed lenses. As with all other lenses in the group, the front element doesn't rotate during focusing.



## FEATURES

- 01** Super Spectra coatings to reduce ghosting and flare.
- 02** The Canon EW-75II hood is pricey at £50 (\$45) extra.
- 03** Ring-type ultrasonic autofocus is speedy and very quiet in operation.
- 04** A focus distance scale gives depth of field markings for f/8, f/16 and f/22.
- 05** With five diaphragm blades, defocused highlights can take on a clearly visible pentagonal shape.

## VERDICT

### FEATURES

★★★★★

### BUILD & HANDLING

★★★★★

### IMAGE QUALITY

★★★★★

### VALUE

★★★★★

### OVERALL

★★★★★

## HOW WE TEST

We combine real-world shooting results with rigorous lab testing to arrive at our overall ratings



**T**o test real-world performance, we use lenses in all sorts of lighting conditions, both indoors and outdoors. We check for good build quality and handling, smooth and precise operation of all controls, and we test the speed and accuracy of autofocus. For this group, all full-frame compatible lenses were tested on both 5D Mk III and 70D bodies, while the APS-C format lenses were tested on the 70D. In-camera corrections for chromatic aberrations and peripheral illumination (where available) are disabled throughout all testing, to better reveal the true performance of each lens.

We run a full range of lab tests under controlled conditions, using the Imatest Master and DxO Analyser suites. Photos of test charts are taken across the range of apertures and analysed for sharpness, distortion and chromatic aberrations (colour fringing). A summary of results is shown on the following pages.



# CANON EF 24mm f/2.8 IS USM £460/\$600

Small, lightweight and affordable, this lens nevertheless goes large in terms of viewing angle

**B**illed as a lens that's 'perfect for landscape, travel and documentary photography', this is one of the new breed of stabilized wide-angle primes from Canon. Indeed, the look and feel are almost identical to the Canon 28mm and 35mm stabilized lenses, also on test. They're not from Canon's more exotic L-series lineup and, as such, they lack the weather-seals that are usually fitted to the more pro-oriented range of lenses. Another niggle is that, like all the other Canon lenses in this group, a lens hood is not included.

All three of the stabilized Canon lenses on test were launched around three years ago and, as such, feature the same late-generation image stabilizer. This gives a benefit of up to four f/stops in beating camera-shake. As well as stabilization, another notable upgrade over the older Canon 20mm lens is that this one features a seven-blade diaphragm, which produces a more rounded aperture.

The angle of view is rather less, at 84 degrees compared with the 20mm lens's 94 degrees (when using both on a full-frame body) but is still pretty generous.

## Performance

Sharpness at the centre of the frame isn't quite as good as from the Canon 20mm lens, when both are used at their widest f/2.8 aperture, but this lens retains better sharpness towards the edges and corners of the frame. Colour fringing is marginally better controlled, while barrel distortion is more pronounced but more regular in shape.



## FEATURES

- 01** The 58mm filter thread fits smaller, and cheaper, filters.
- 02** The manual focus ring is slightly wider than that of the Canon 28mm lens.
- 03** The hood is sold as an optional extra – an EW-65B, costing around £50 (\$50).
- 04** The focus distance scale has markings for f/11 and f/22.
- 05** The focal length of 24mm gives an effective length of 38.4mm on an APS-C format body.

## VERDICT

### FEATURES

★★★★☆

### BUILD & HANDLING

★★★★☆

### IMAGE QUALITY

★★★★☆

### VALUE

★★★★☆

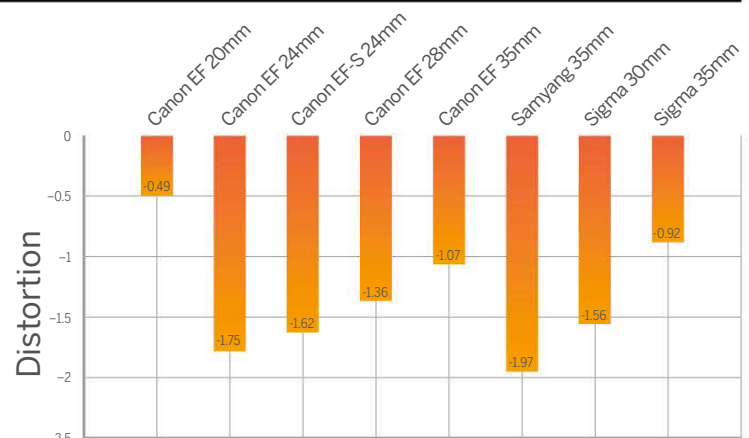
### OVERALL

★★★★☆

## DISTORTION

One of the advantages of using a prime lens, over a zoom, is that distortion tends to be better controlled...

**Y**ou can expect wide-angle prime lenses to produce rather less barrel distortion than standard zoom lenses at their shortest focal length. This is borne out when comparing one of the 24mm prime lenses in this group with a 24-70mm or 24-105mm zoom. However, as you advance to about the 35mm mark in a standard zoom lens (24mm on an APS-C format 18-55mm standard zoom), the zoom lenses may even have slightly less distortion and some may switch to slight pincushion distortion at around this focal length.



Negative results of higher values indicate greater barrel distortion



## CANON EF-S 24mm f/2.8 STM £170/\$150

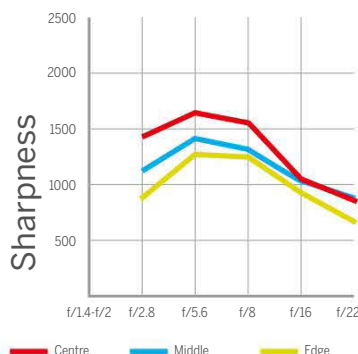
Unfeasibly small for a DSLR lens, this 'pancake' optic is slim enough to slip into a spare pocket

**S**mall in both size and price, this is one of two pancake lenses recently launched by Canon. The other is the EF 40mm f/2.8, which is compatible with both full-frame and APS-C format cameras. This one is for APS-C bodies only, but similarities include a lightweight build, an ultra-slim profile and STM (Stepping Motor) autofocus. Theoretically, this should enable smooth autofocus transitions and virtually silent operation, both facets being ideal for movie capture.

At 23mm deep and a mere 125g in weight, the lens is certainly travel-friendly. And while the front element is very small, the widest available aperture of f/2.8 matches most full-sized Canon lenses in the group. The seven-blade aperture is a plus point, but there's no image stabilization. The effective focal length of 38.4mm on APS-C bodies gives a viewing angle of 35 degrees – much less than the 84 degrees delivered by the larger Canon EF 24mm lens.

### Performance

The tiny focus ring enables a fly-by-wire manual focus system which works smoothly and effectively. The smoothness of autofocus is as advertised, but the system is clearly audible and, in our tests, proved louder than most of the ultrasonic lenses. We've been very impressed with the sharpness of Canon's 40mm pancake lens in the past, but this fell behind the other Canon lenses in the group. Barrel distortion is a little higher than average but colour fringing is well restrained. Vignetting at the widest aperture is quite noticeable.



### FEATURES

- 01** In keeping with its tiny dimensions, the lens has a small 52mm filter thread.
- 02** A circular ES-52 hood is available separately for around £19 (\$14).
- 03** The front element doesn't rotate, but inner barrel extends when focusing at closer distances.
- 04** There's no focus distance scale.
- 05** Unlike some inexpensive lenses, the mounting plate is metal, not plastic.

### VERDICT

- FEATURES** ★★★★★
- BUILD & HANDLING** ★★★★★
- IMAGE QUALITY** ★★★★★
- VALUE** ★★★★★
- OVERALL** ★★★★★

## ANGLES OF VIEW

Crop and full-frame focal lengths...

**T**he angle of view delivered by a lens is measured diagonally, but comparing the effect of the crop factor on an APS-C body to full-frame can be difficult. This sequence of shots, taken from the same position, shows the effect of using all the different focal lengths of full-frame lenses on test as well as using the APS-C format Canon 24mm and Sigma 30mm lenses on a 70D body.



24mm APS-C



30mm APS-C



# CANON EF 28mm f/2.8 IS USM £410/\$550

It's a classic wide-angle focal length wrapped up in a diminutive build with a modern, high-tech design

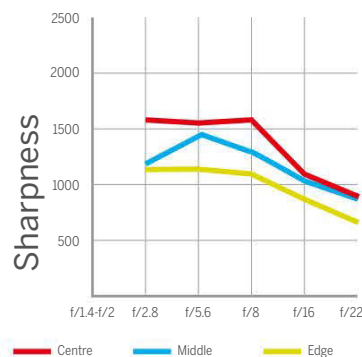
Comparing all three of the new stabilized Canon lenses on test, this one is the smallest and lightest, at 68x52mm and 260g. Even so, it's only 4mm shorter and 20g lighter than the EF 24mm IS USM, so there's not much in it. Both lenses are identical in physical width and have the same widest aperture of f/2.8, the same filter thread of 58mm, and take the same optional EW-65B lens hood. On a full-frame body, the 28mm gives a smaller angle of view of 75 degrees compared with the 24mm lens's 84 degrees, measured on the diagonal.

The 28mm lens can't focus quite as close as the 24mm, with a minimum distance of 0.23m instead of 0.2m, and the maximum magnification factor is a little less at 0.2x compared with 0.23x. The focus ring is narrower, too. But overall, the similarities far outweigh the differences between the two lenses, so it's really the change in angle of view that's most noticeable.

And while 28mm is still fairly wide on a full-frame camera, this focal length works better than the 24mm lens for use as a 'standard prime' on an APS-C format body.

## Performance

Autofocus speed and its near-silence in operation is another even match between the Canon EF 28mm and 24mm lenses. The only real differences in performance are that this lens is slightly sharper at its widest aperture of f/2.8, where colour fringing is also marginally less noticeable. There's also a bit less barrel distortion.



## FEATURES

- 01 Focusing is fully internal, so the front element neither extends nor rotates.
- 02 Coatings keep ghosting and flare to a minimum.
- 03 The manual focus ring is narrower than Canon's 24mm and 35mm lenses.
- 04 As with Canon's other IS lenses, the focus distance scale has markings for f/11 and f/22.
- 05 The lens's design has nine elements in seven groups.

## VERDICT

### FEATURES

★★★★☆

### BUILD & HANDLING

★★★★☆

### IMAGE QUALITY

★★★★☆

### VALUE

★★★★☆

### OVERALL

★★★★☆



20mm Full-frame



28mm Full-frame



35mm Full-frame



## CANON EF 35mm f/2 IS USM £470/\$600

Wider but also narrower, this is the second-largest Canon lens in the group and the most expensive

Whereas all the other Canon lenses on test have a widest available aperture of f/2.8, this one goes a full f/stop wider to f/2 (though it doesn't manage to go quite as wide as the f/1.4 aperture of the Sigma and Samyang lenses). It also has the narrowest angle of view, at least when used on a full-frame body, equating to 54 degrees on the horizontal. The latter is a function of it having the longest focal length and, when combined with its wider aperture, this enables a noticeably tighter depth of field at or near the closest focus distance of 0.24m.

As an extra bonus for giving a smooth bokeh (the quality of defocused areas) when the lens is stopped down a bit, the aperture is well-rounded. It has eight diaphragm blades whereas most other Canon lenses in the group have only seven, and the EF 20mm only has five. In other respects, the lens goes toe to toe with the similarly new Canon EF 24mm

and EF 28mm lenses, boasting the same late-generation image stabilizer.

### Performance

Sharpness at the centre of the frame isn't particularly impressive at f/2 but it beats everything else on test from f/2.8 onwards, marginally drawing ahead of the Sigma 35mm. Sharpness is also good towards the edges and corners of the frame at f/2.8 and narrower apertures but, in this respect, it loses out slightly to the competing Sigma. Colour fringing is particularly well controlled and barrel distortion is fairly low.



### FEATURES

- 01 The 67mm filter size is shared only by the Sigma 35mm.
- 02 Again, you have to buy a lens hood – the EW-72, costs around £50 (\$55).
- 03 At 78x63mm and 335g, it's bit chunkier than the Canon EF 24mm and 28mm lenses.
- 04 The widest f/2 aperture is larger than in any other Canon lens on test.
- 05 Like Canon's other lenses, IS gives a 4-stop benefit.

### VERDICT

- FEATURES ★★★★★
- BUILD & HANDLING ★★★★★
- IMAGE QUALITY ★★★★★
- VALUE ★★★★★
- OVERALL ★★★★★

## VIGNETTING & PERIPHERAL ILLUMINATION

Darkened corners and how to get rid of them

Vignetting is a phenomenon in which areas towards the edges and corners of the image are darker than the centre. Wide-angle lenses are particularly prone to the problem. One of the benefits of using genuine Canon lenses is that in-camera correction for 'peripheral illumination' is applied automatically when shooting JPEGs; when shooting Raw files, the adjustment is carried out when processing images in Canon's Digital Photo Professional program.



This pair of images shows the difference that applying peripheral illumination correction can make, when using current and recent Canon EOS DSLRs with own-brand lenses



# SAMYANG 35mm f/1.4 AS UMC £370/\$420

It's a manual lens but not as completely 'manual' as the Samyang lenses we've seen before

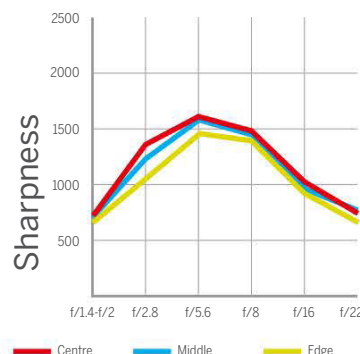
**K**orean manufacturer Samyang has been making lenses for more than 40 years, all of them requiring manual focusing, as there's no autofocus facility. Historically, Canon-fit editions of Samyang lenses have required you to set the aperture manually, by using an antiquated aperture ring on the lens itself. This gives a progressively darker viewfinder image at narrower apertures, and means that you can't use auto exposure modes with the lenses fitted.

The latest 35mm Samyang (also sold under Rokinon and Bower badges) is a major improvement, as it has built-in electronics. A key benefit is that you can use the lens in all shooting modes, as the aperture is set from the camera body in the normal way. Another bonus is that the focus confirmation lamp in the viewfinder is enabled, making precise manual focusing easier to achieve. Samyang's typically good build quality remains, with a really solid

feel to the lens and beautifully smooth focus ring action. It's a chunky lens, being physically wider, nearly twice the length and over twice the weight of the Canon 35mm lens on test. This is due to its wider available aperture of f/1.4 compared with Canon's f/2.

## Performance

Contrast and sharpness drop away alarmingly at the widest aperture, across the entire image frame, but are very respectable between f/2.8 and f/16. Colour fringing is about average but barrel distortion is a little worse than from any other lens in the group.



## FEATURES

- 01** At 77mm, it has the largest filter thread in the group.
- 02** A petal-shaped lens hood is included.
- 03** Manual focus is easy, with large focus ring.
- 04** Distance scale has DoF marks for f/2.8, f/5.6, f/11, f/16 & f/22.
- 05** Communicates with the camera, unlike most Samyang lenses.
- 06** Samyang lenses also sold under Rokinon and Bower brands.

## VERDICT

### FEATURES

★★★★★

### BUILD & HANDLING

★★★★★

### IMAGE QUALITY

★★★★★

### VALUE

★★★★★

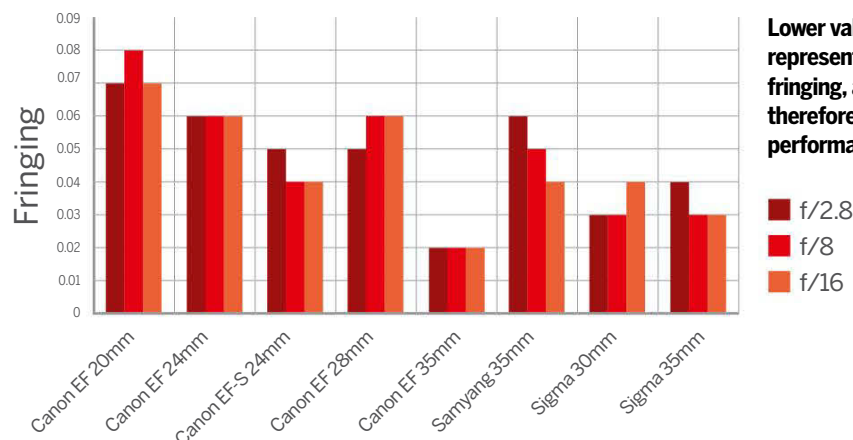
### OVERALL

★★★★★

## COLOUR FRINGING

What is that green and magenta line?

**C**olour fringing, or 'lateral chromatic aberration' is an unwanted attribute where coloured lines appear around high-contrast edges, such as tree branches against a bright sky. The effect is due to the inability of a lens to focus the full spectrum of light at the same point on the camera's image sensor, in the 'lateral' plane. As with peripheral illumination, automatic corrections are available for most genuine Canon lenses.



Lower values represent less fringing, and therefore better performance

■ f/2.8  
■ f/8  
■ f/16



## SIGMA 30mm f/1.4 DC HSM A £370/\$500

When is a wide-angle lens not a wide-angle lens? This Sigma aims to set a new 'standard' for crop cameras

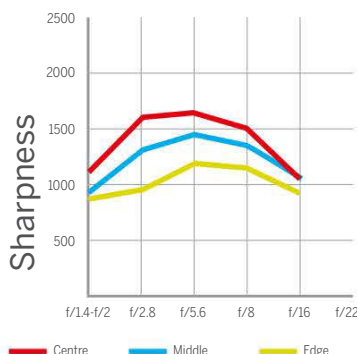
A 30mm lens is a wide-angle optic in anybody's book, so long as they're referring to full-frame photography. This Sigma 30mm, however, isn't compatible with full-frame bodies and is designed exclusively for DSLRs with APS-C image sensors. A such, the 'effective' focal length, after applying the 1.6x crop factor, works out to 48mm. It's therefore best regarded as a fast, standard prime lens for cameras like the 750D, 70D and 7D Mk II. It's beautifully crafted and feels a really high-quality lens.

As we've seen, the full-frame Canon 28mm can be used to similar effect on an APS-C format body, with an effective 44.8mm focal length. The Canon lens has the advantage of IS, which can come in very handy for handheld shooting. The Sigma's main selling point, however, is that it gives a widest aperture that's two full f/stops faster than the Canon lens. That makes faster shutter

speeds possible in low lighting conditions, reducing the need for image stabilization. More importantly, it also enables a tighter depth of field, for creatively blurring defocused backgrounds or foregrounds.

### Performance

AF isn't that rapid, despite the Sigma boasting a ring-type ultrasonic system, similar to most other lenses on test. Lab scores for sharpness are also a little down on most other lenses within the group, especially at the narrowest available f/16 aperture, whereas barrel distortion is a bit higher than expected.



### FEATURES

- 01 Sigma's 'Super Multi-Layer Coating' reduces ghosting and flare, and helps maintain contrast.
- 02 Relatively small for a 30mm f/1.4 lens.
- 03 Ring-type ultrasonic autofocus system, so the lack of speed is surprising.
- 04 The nine-blade diaphragm gives a very well-rounded aperture.
- 05 Brass lens mount is specially treated to make it stronger and more durable.

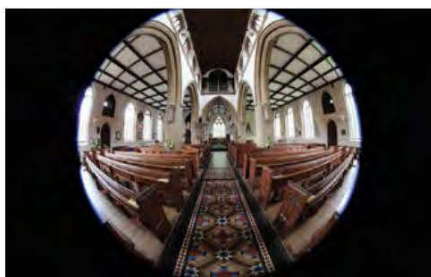
### VERDICT

- FEATURES ★★★★★
- BUILD & HANDLING ★★★★★
- IMAGE QUALITY ★★★★★
- VALUE ★★★★★
- OVERALL ★★★★★

## NEED MORE WIDTH? GO FOR A FISHEYE...

Very wide angles mean extreme distortion

One optical facet shared by wide-angle lenses is that they aim to minimize barrel distortion. You can get a much wider angle of view if you switch to a fisheye lens, but you'll also get extreme barrel distortion. Diagonal fisheye lenses project a frame-filling image with up to a 180-degree viewing angle measured diagonally. Circular fisheye lenses give an even wider viewing angle of up to 180 degrees horizontally and vertically.



The unique Canon EF 8-15mm f/4L Fisheye lens for full-frame bodies offer both diagonal and circular fisheye effects, as we've illustrated at opposite ends of the zoom range



# SIGMA 35mm f/1.4 DG HSM A £650/\$900

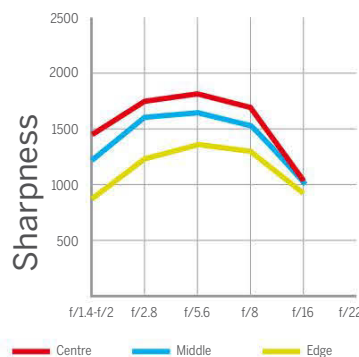
Surprisingly compact for a full-frame 35mm f/1.4 lens, the Sigma is neat, tidy and very well put together

**L**enses from the new 'Art' line in Sigma's stable are intended to deliver premium quality in build, handling and imaging characteristics, along with high-level creative potential. This 35mm lens is exemplary in all these respects. There's a wealth of aspherical, SLD (Special Low Dispersion) and top-level fluorite-grade FLD ('F' Low Dispersion) elements in an immaculately finished casing. It feels every inch a top-class professional lens, easing ahead of the Canon lenses in the group, which have a more run-of-the-mill, consumer-grade feel to them.

Like the APS-C format Sigma 30mm lens that's also on test, this full-frame optic has a fast widest aperture of f/1.4, this time enabling an even tighter depth of field. Another similarity is that both lenses are compatible with Sigma's new USB Dock, which enables you to apply firmware upgrades and to customise parameters like autofocus, via a connected computer.

## Performance

Autofocus is noticeably faster than in the Sigma 30mm, snapping into accurate focus with near-silent precision. Sharpness is outstanding, not only in the centre of the frame but right into the corners, even at very wide apertures, yet the lab score for centre-sharpness is less impressive at the narrowest aperture of f/16. Distortion is a little less noticeable than with the Canon 35mm, and noticeable reduced compared with the Samyang 35mm. It's more expensive than the other lenses tested, but a fabulous lens well worth the extra.



## FEATURES

- 01** The filter thread of 67mm is very modest for a 35mm lens with such a wide, f/1.4 aperture.
- 02** 'Thermally Stable Composite' build for utmost integrity during changes in temperature.
- 03** Autofocus is very rapid but barely audible.
- 04** The well-rounded diaphragm features nine blades.
- 05** Brass lens mount is reinforced for greater strength.

## VERDICT

- FEATURES**  
★★★★★
- BUILD & HANDLING**  
★★★★★
- IMAGE QUALITY**  
★★★★★
- VALUE**  
★★★★★
- OVERALL**  
★★★★★

## IS FASTER BETTER?

Not only is fast glass more costly, it tends to be bigger and heavier too

**P**eople often say that faster is better when it comes to lenses. However, an f/1.4 lens, for example, will typically be bigger and heavier than an f/2.8 lens, because the diameter of the front element needs to be larger so that it can let in more light. Faster lenses can therefore be more cumbersome and take up more stowage space. The upside is that









they'll enable faster shutter speeds and a shallower depth of field. Top-quality fast lenses can also be very expensive. Compared with the Canon 24mm and 35mm f/2.8 lenses in this test group, the Canon EF 24mm f/1.4L II USM is much pricier at £1225 (\$1650), as is the EF 35mm f/1.4L USM at £1060/\$1480. The Sigma 35mm f/1.4, featured above, is much more reasonably priced.



Canon L-series lenses have premium build and optical qualities but not all of them are weather-sealed. Neither of the wide-angle EF 24mm f/1.4L II USM (shown here) or the EF 35mm f/1.4L USM have weather-seals



## COMPARISON TABLE

	CANON EF 20mm f/2.8 USM	CANON EF 24mm f/2.8 IS USM	CANON EF-S 24mm f/2.8 STM	CANON EF 28mm f/2.8 IS USM	CANON EF 35mm f/2 IS USM	SAMYANG 35mm f/1.4 AS UMC	SIGMA 30mm f/1.4 DC HSM A	SIGMA 35mm f/1.4 DG HSM A
								
FULL-FRAME COMPATIBLE	Yes	Yes	No	Yes	Yes	Yes	No	Yes
EFFECTIVE FOCAL LENGTH (APS-C)	32mm	38.4mm	38.4mm	44.8mm	56mm	56mm	48mm	56mm
IMAGE STABILISER	No	4-stop	No	4-stop	4-stop	No	No	No
ANGLE OF VIEW – DIAGONAL	94 degrees (FF)	84 degrees (FF)	35 degrees (APS-C)	75 degrees (FF)	54 degrees (FF)	63 degrees (FF)	50 degrees (APS-C)	63 degrees (FF)
MINIMUM APERTURE	f/22	f/22	f/22	f/22	f/22	f/22	f/16	f/16
ELEMENTS/GROUPS	11/9	11/9	6/5	9/7	10/8	12/10	9/8	13/11
DIAPHRAGM BLADES	5 blades	7 blades	7 blades	7 blades	8 blades	8 blades	9 blades	9 blades
MINIMUM FOCUS DISTANCE	0.25m	0.2m	0.16m	0.23m	0.24m	0.3m	0.3m	0.3m
MAX MAGNIFICATION FACTOR	0.14x	0.23x	0.27x	0.2x	0.24x	Unspecified	0.15x	0.19x
AUTOFOCUS ACTUATOR	Ultrasonic (ring-type)	Ultrasonic (ring-type)	Stepping motor	Ultrasonic (ring-type)	Ultrasonic (ring-type)	None (manual focus only)	Ultrasonic (ring-type)	Ultrasonic (ring-type)
FULL-TIME MANUAL FOCUS OVERRIDE	Yes	Yes	Yes	Yes	Yes	Not applicable	Yes	Yes
INTERNAL FOCUS	Yes	Yes	No (barrel extends)	Yes	Yes	No (inner barrel extends)	Yes	Yes
FILTER SIZE	72mm	58mm	52mm	58mm	67mm	77mm	62mm	67mm
HOOD	EW-75II	EW-65B	ES-52	EW-65B	EW-72	Included	Included	Included
DIMENSIONS (DIA X LENGTH)	78x71mm	68x56mm	68x23mm	68x52mm	78x63mm	83x112mm	74x63mm	77x94mm
WEIGHT	405g	280g	125g	260g	335g	710g	435g	665g
TARGET PRICE	£410, \$540	£460, \$600	£170, \$150	£410, \$550	£470, \$600	£370, \$420	£370, \$500	£650, \$900
FEATURES	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
BUILD & HANDLING	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
IMAGE QUALITY	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
VALUE	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
OVERALL	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★

## THE WINNER IS... SIGMA 35mm f/1.4 DG HSM A

Practically perfect as a fast wide-angle prime for full-frame bodies, and more besides...

**C**lever design, superb build quality and stunning image performance are the main attractions of the Sigma 35mm. It's compact for a fast wide-angle lens with an f/1.4 aperture, and autofocus is also very quick. Overall, it's simply the best wide-angle lens in this group, while Sigma's 30mm f/1.4 lens offers good value for crop-sensors on a tighter budget.

One thing that's lacking in the Sigma lenses is image stabilization. All three of the Canon

24mm, 28mm and 35mm full-frame compatible lenses have this. Of these, the EF 35mm f/2 lens edges slightly ahead for image quality and is a stop faster. The Canon EF 20mm f/2.8 USM lacks stabilization but has a wider viewing angle. The APS-C only Canon EF-S 24mm f/2.8 STM is worth considering if you want a tiny travel lens, at a rock-bottom price. The much larger, full-frame Samyang 35mm f/1.4 AS UMC is also a decent buy if you can live without autofocus. **PP**







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## NEW: THE PROFOTO OFF-CAMERA FLASH SYSTEM



"I hadn't enjoyed using flash for many years. The ones I tried were either too bulky or too restraining. The Profoto Off-Camera Flash System has changed that. Now, I can move around freely, follow the inspiration and control the light in whatever situation I may find myself. For me, it feels like the beginning of something new."

- Australian wedding photographer Yervant



See the world's best photographers using Profoto Off-Camera Flash  
on [profoto.com/uk/offcameraflash](http://profoto.com/uk/offcameraflash)



# PhotoPlus BUYERS' GUIDE

With prices ranging from a couple of hundred quid to several thousand, Canon has a DSLR to suit everyone, from the complete beginner to most demanding pro...

## What to look for

### Canon EOS DSLRs

Canon splits its EOS lineup into entry-level, enthusiast and professional ranges, and the fewer digits the more upmarket the camera, roughly speaking, so the 1200D is the most basic model, while the 1D X is reserved strictly for pros (or those with deep pockets). Expect greater ease of use (with thumb-operated scrollwheels replacing cumbersome cursor keys), more robust build quality (with weather-sealing and tough magnesium-alloy shells), more advanced functionality, and full-frame (rather than smaller APS-C) image sensors with more expensive models.



#### CANON EOS 1200D (REBEL T5)

TESTED IN ISSUE 87 PRICE: £249/\$400



**AN IDEAL** starter camera, it keeps things simple yet covers all the basics, including an 18Mp sensor. A handy companion app is available for free download, serving as an interactive shooting guide. However, the low-res LCD screen lacks touch or vari-angle facilities. ★★☆☆☆

<b>Sensor</b>	18Mp, APS-C (5184x3456 pixels)
<b>Viewfinder</b>	Pentamirror, 0.8x, 95%
<b>ISO</b>	100-6400 (12,800 expanded)
<b>AF</b>	9-point (1 cross-type)
<b>LCD</b>	3in, 460K dots
<b>Max burst (buffer)</b>	3fps (6 Raw/69 JPEG)
<b>Memory card</b>	SD/SDHC/SDXC

#### CANON EOS 100D (REBEL SL1)

TESTED IN ISSUE 75 PRICE: £300/\$450



**IT'S SMALLER** than any other Canon DSLR but is big on features and is something of a step up in sophistication from the 1200D, with a newer-generation image processor, high-res touchscreen and 'hybrid CMOS AF' for effective continuous autofocus during movie capture. ★★★★★

<b>Sensor</b>	18Mp, APS-C (5184x3456 pixels)
<b>Viewfinder</b>	Pentamirror, 0.87x, 95%
<b>ISO</b>	100-12,800 (25,600 expanded)
<b>AF</b>	9-point (1 cross-type)
<b>LCD</b>	3in touchscreen, 1040K dots
<b>Max burst (buffer)</b>	4fps (7 Raw/28 JPEG)
<b>Memory card</b>	SD/SDHC/SDXC

#### CANON EOS 700D (REBEL T5i)

TESTED IN ISSUE 75 PRICE: £429/\$600



**WITH A** faster continuous drive rate than the 100D, better AF and the bonus of a vari-angle touchscreen, the 700D is more versatile for shooting from extreme angles or around corners. It's a lovely lightweight camera but is now outclassed by the newer 750D. ★★★★★

<b>Sensor</b>	18Mp, APS-C (5184x3456 pixels)
<b>Viewfinder</b>	Pentamirror, 0.85x, 95%
<b>ISO</b>	100-12,800 (25,600 expanded)
<b>AF</b>	9-point (all cross-type)
<b>LCD</b>	3in touchscreen vari-angle, 1040K dots
<b>Max burst (buffer)</b>	5fps (6 Raw/22 JPEG)
<b>Memory card</b>	SD/SDHC/SDXC

#### CANON EOS 750D (REBEL T6i)

PRICE: £600/\$750



**HEADLINE** attractions include a new 24.2Mp high-res image sensor and DIGIC 6 processor, plus a 19-point autofocus system. It beats the older 700D in all these respects, while also adding Wi-Fi and NFC connectivity for easy sharing and printing of images. **FULL TEST NEXT ISSUE!**

<b>Sensor</b>	24.2Mp, APS-C (6000x4000 pixels)
<b>Viewfinder</b>	Pentamirror, 0.82x, 95%
<b>ISO</b>	100-12,800 (25,600 expanded)
<b>AF</b>	19-point (all cross-type)
<b>LCD</b>	3in touchscreen vari-angle, 1040K dots
<b>Max burst (buffer)</b>	5fps (8 Raw/940 JPEG)
<b>Memory card</b>	SD/SDHC/SDXC

#### CANON EOS 760D (REBEL T6s)

PRICE: £650/\$860



**BUILDING** on the impressive specifications and features of the 750D, the 760D adds a secondary info LCD on the top and Quick Control Dial on the rear. This improves handling and makes it feel more like an 'enthusiast' camera, rather than an entry-level model. **FULL TEST NEXT ISSUE!**

<b>Sensor</b>	24.2Mp, APS-C (6000x4000 pixels)
<b>Viewfinder</b>	Pentamirror, 0.82x, 95%
<b>ISO</b>	100-12,800 (25,600 expanded)
<b>AF</b>	19-point (all cross-type)
<b>LCD</b>	3in touchscreen vari-angle, 1040K dots
<b>Max burst (buffer)</b>	5fps (8 Raw/940 JPEG)
<b>Memory card</b>	SD/SDHC/SDXC



## CANON EOS 70D

TESTED IN ISSUE 79 PRICE: £749/\$1100



**A BREAKTHROUGH** DSLR, the 70D delivers fast and smooth autofocus in Live View and movie modes, thanks to its revolutionary 'Dual Pixel CMOS AF' image sensor, backed up by DIGIC 5+ processing. The 7fps continuous drive rate is quick and it has built-in Wi-Fi. ★★★★★

<b>Sensor</b>	20.2Mp, APS-C (5472x3648 pixels)
<b>Viewfinder</b>	Pentaprism, 0.95x, 98%
<b>ISO</b>	100-12,800 (25,600 expanded)
<b>AF</b>	19-point (all cross-type)
<b>LCD</b>	3in touchscreen vari-angle, 1040K dots
<b>Max burst (buffer)</b>	7fps (16 Raw/65 JPEG)
<b>Memory card</b>	SD/SDHC/SDXC

## CANON EOS 7D

TESTED IN ISSUE 29 PRICE: £725/\$850



**IT'S A** quick-shooter 8fps camera with dual processors and a tough magnesium alloy build. However, while it had standout specifications when launched back in 2009, it has now been eclipsed by the new 7D Mk II. It is great value though – whilst stocks last! ★★★★★

<b>Sensor</b>	18Mp, APS-C (5184x3456 pixels)
<b>Viewfinder</b>	Pentaprism, 1.0x, 100%
<b>ISO</b>	100-6400 (12,800 expanded)
<b>AF</b>	19-point (all cross-type)
<b>LCD</b>	3in, 920K dots
<b>Max burst (buffer)</b>	8fps (25 Raw/126 JPEG)
<b>Memory card</b>	CompactFlash

## CANON EOS 7D MK II

TESTED IN ISSUE 95 PRICE: £1429/\$1800



**HERE'S** the king of action-packed APS-C format cameras. A long-overdue revamp of the original 7D, it has 65-point AF with advanced tracking, 10fps continuous drive, dual DIGIC 6 processors and GPS, all wrapped up in a tough, weather-sealed magnesium alloy shell. ★★★★★

<b>Sensor</b>	20.2Mp, APS-C (5472x3648 pixels)
<b>Viewfinder</b>	Pentaprism, 1.0x, 100%
<b>ISO</b>	100-16,000 (51,200 expanded)
<b>AF</b>	65-point (all cross-type)
<b>LCD</b>	3in, 1040K dots
<b>Max burst (buffer)</b>	10fps (31 Raw/unlimited JPEG)
<b>Memory card</b>	CompactFlash + SD/SDHC/SDXC

## CANON EOS 6D

TESTED IN ISSUE 67 PRICE: £1170/\$1800



**AMAZINGLY** good value for a full-frame EOS DSLR in a medium-sized body, the 6D combines a respectable 20.2Mp sensor with super-high sensitivities of up to ISO102,400. Image quality is excellent and there's built-in Wi-Fi and GPS, but the 6D has a fairly basic AF system. ★★★★★

<b>Sensor</b>	20.2Mp, full-frame (5472x3648 pixels)
<b>Viewfinder</b>	Pentaprism, 0.71x, 97%
<b>ISO</b>	100-25,600 (50-102,400 expanded)
<b>AF</b>	11-point (1 cross-type)
<b>LCD</b>	3in, 1040K dots
<b>Max burst (buffer)</b>	4.5fps (17 Raw/1250 JPEG)
<b>Memory card</b>	SD/SDHC/SDXC

## CANON EOS 5D MK III

TESTED IN ISSUE 61 PRICE: £2249/\$3100



**REMARKABLY** compact and lightweight for a fully pro and weather-sealed full-frame body, the 22Mp 5D Mk III boasts the same top-notch AF system as the 1D X and delivers stunning image quality, even under very low lighting. The big, bright viewfinder is brilliant. ★★★★★

<b>Sensor</b>	22.3Mp, full-frame (5760x3840 pixels)
<b>Viewfinder</b>	Pentaprism, 0.71x, 100%
<b>ISO</b>	100-25,600 (50-102,400 expanded)
<b>AF</b>	61-point (41 cross-type, 5 dual-cross)
<b>LCD</b>	3.2in, 1040K dots
<b>Max burst (buffer)</b>	6fps (18 Raw/16,270 JPEG)
<b>Memory card</b>	CompactFlash + SD/SDHC/SDXC

## CANON EOS 5DS (5DS R)

PRICE: £3000/\$3700



**TAKING** image resolution to new heights, the 5DS combines a 50 megapixel sensor with dual DIGIC 6 processors. The higher-cost 5DS R adds a 'low-pass cancellation filter' to maximise extreme sharpness. As expected, max ISO and drive rate are slower than 5D Mk III. **FULL TEST SOON**

<b>Sensor</b>	50.6Mp, full-frame (8688x5792 pixels)
<b>Viewfinder</b>	Pentaprism, 0.71x, 100%
<b>ISO</b>	100-6400 (50-12,800 expanded)
<b>AF</b>	61-point (41 cross-type, 5 dual-cross)
<b>LCD</b>	3.2in, 1040K dots
<b>Max burst (buffer)</b>	5fps (14 Raw/510 JPEG)
<b>Memory card</b>	CompactFlash + SD/SDHC/SDXC

## CANON EOS 1D X

TESTED IN ISSUE 66 PRICE: £4450/\$6000



**CANON'S** flagship full-frame professional camera boasts ultra-fast 14fps shooting and super-high ISO, along with sublime handling in its large EOS body. Build quality is rock-solid, yet image resolution is relatively modest, especially compared with the 5DS and 5DS R. ★★★★★

<b>Sensor</b>	18.1Mp, full-frame (5184x3456 pixels)
<b>Viewfinder</b>	Pentaprism, 0.76x, 100%
<b>ISO</b>	100-51,200 (50-204,800 expanded)
<b>AF</b>	61-point (41 cross-type, 5 dual-cross)
<b>LCD</b>	3.2in, 1040K dots
<b>Max burst (buffer)</b>	12-14fps (38 Raw/180 JPEG)
<b>Memory card</b>	2x CompactFlash



# PhotoPlus BUYERS' GUIDE

With over 150 lenses available for Canon DSLRs, picking the best for the job can be a minefield. Here's the lowdown on all currently available EOS-fit glass

## Choosing lenses

Key factors to watch out for



**THE MAIN** factors to consider in a lens are its focal length, maximum aperture, and whether or not it's full-frame compatible. We've categorized lenses by focal length range – from wide-angle to telephoto. The larger a lens's maximum aperture, the 'faster' it's considered to be – allowing you to control depth of field more, and offering better options in low light. Zooms are more flexible than primes, but tend not to have such fast maximum apertures. Full-frame lenses will also work with 'crop-sensor' EOS D-SLRs, but crop-sensor lenses aren't compatible with full-frame cameras.

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

### WIDE-ANGLE ZOOMS

	Price	Full-frame	Max zoom	Image stabilisation	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
<b>Canon</b> EF 8-15mm f/4L Fisheye USM	£1000/\$1350	Yes	1.9x	No	f/4	540g	0.15m	0.34x	None	7	90	★★★★★	
<b>Canon</b> EF-S 10-18mm f/4.5-5.6 IS STM	£245/\$300	No	1.8x	Yes	f/4.5-5.6	240g	0.22m	0.15x	67mm	7			
<b>Canon</b> EF-S 10-22mm f/3.5-4.5 USM	£450/\$650	No	2.2x	No	f/3.5-4.5	385g	0.24m	0.17x	77mm	6	87	★★★★★	
<b>Canon</b> EF 11-24mm f/4L USM	£2800/\$3000	Yes	2.2x	No	f/4	1180g	0.28m	0.16x	None	9			
<b>Canon</b> EF 16-35mm f/2.8 II USM	£1170/\$1700	Yes	2.2x	No	f/2.8	640g	0.28m	0.22x	82mm	7	74	★★★★★	●
<b>Canon</b> EF 16-35mm f/4L IS USM	£1000/\$1200	Yes	2.2x	Yes	f/4	615g	0.28m	0.23x	77mm	9			
<b>Canon</b> EF 17-40mm f/4L USM	£595/\$840	Yes	2.4x	No	f/4	500g	0.28m	0.24x	77mm	7	74	★★★★★	●
<b>Sigma</b> 8-16mm f/4.5-5.6 DC HSM	£550/\$700	No	2.0x	No	f/4.5-5.6	555g	0.24m	0.13x	None	7	87	★★★★★	
<b>Sigma</b> 10-20mm f/3.5 EX DC HSM	£400/\$640	No	2.0x	No	f/3.5	520g	0.24m	0.15x	82mm	7	87	★★★★★	●
<b>Sigma</b> 10-20mm f/4-5.6 EX DG HSM	£350/\$400	No	2.0x	No	f/4-5.6	465g	0.24m	0.15x	77mm	6	74	★★★★★	●
<b>Sigma</b> 12-24mm f/4.5-5.6 II DG HSM	£580/\$950	Yes	2.0x	No	f/4.5-5.6	670g	0.28m	0.16x	None	6	74	★★★★★	
<b>Tamron</b> SP AF 10-24mm f/3.5-4.5 Di II LD	£360/\$500	No	2.4x	No	f/3.5-4.5	406g	0.24m	0.2x	77mm	7	87	★★★★★	
<b>Tamron</b> SP 15-30mm f/2.8 Di VC USD	£950/\$1200	Yes	2.0x	Yes	f/2.8	1100g	0.28m	0.2x	None	9			
<b>Tokina</b> 10-17mm f/3.5-4.5 AT-X DX Fisheye	£530/\$530	No	1.7x	No	f/3.5-4.5	350g	0.14m	0.39x	None	6	87	★★★★	
<b>Tokina</b> 11-16mm f/2.8 AT-X PRO DX II	£600/\$480	No	1.5x	No	f/2.8	550g	0.3m	0.09x	77mm	9	87	★★★★	
<b>Tokina</b> 12-28mm f/4 AT-X Pro DX	£530/\$450	No	2.3x	No	f/4	530g	0.25m	0.2x	77mm	9	87	★★★★	
<b>Tokina</b> 16-28mm f/2.8 AT-X PRO FX	£700/\$630	Yes	1.8x	No	f/2.8	950g	0.28m	0.19x	None	9			
<b>Tokina</b> 17-35mm f/4 AT-X PRO FX	£550/\$450	Yes	2.1x	No	f/4	600g	0.28m	0.21x	82mm	9			

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

### TELEPHOTO ZOOMS

	Price	Full-frame	Max zoom	Image stabilisation	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
<b>Canon</b> EF-S 55-250mm f/4-5.6 IS STM	£260/\$300	No	4.5x	Yes	f/4-5.6	375g	0.85m	0.29x	58mm	7	96	★★★★★	
<b>Canon</b> EF 70-200mm f/2.8L IS II USM	£1700/\$2200	Yes	2.9x	Yes	f/2.8	1490g	1.2m	0.21x	77mm	8	98	★★★★★	●
<b>Canon</b> EF 70-200mm f/2.8L USM	£1020/\$1450	Yes	2.9x	No	f/2.8	1310g	1.5m	0.16x	77mm	8	64	★★★★★	
<b>Canon</b> EF 70-200mm f/4L IS USM	£960/\$1300	Yes	2.9x	Yes	f/4	760g	1.2m	0.21x	67mm	8	98	★★★★★	
<b>Canon</b> EF 70-200mm f/4L USM	£495/\$710	Yes	2.9x	No	f/4	705g	1.2m	0.21x	67mm	8	96	★★★★★	
<b>Canon</b> EF 70-300mm f/4-5.6 IS USM	£370/\$650	Yes	4.3x	Yes	f/4-5.6	630g	1.5m	0.26x	58mm	8	96	★★★★	
<b>Canon</b> EF 70-300mm f/4-5.6L IS USM	£1070/\$1450	Yes	4.3x	Yes	f/4-5.6	1050g	1.2m	0.21x	67mm	8	83	★★★★★	
<b>Canon</b> EF 70-300mm f/4.5-5.6 DO IS USM	£1140/\$1400	Yes	4.3x	Yes	f/4.5-5.6	720g	1.4m	0.19x	58mm	6	90	★★★★	
<b>Canon</b> EF 75-300mm f/4-5.6 III	£190/\$200	Yes	4.0x	No	f/4-5.6	480g	1.5m	0.25x	58mm	7	15	★★★★	
<b>Canon</b> EF 75-300mm f/4-5.6 III USM	£210/\$180	Yes	4.0x	No	f/4-5.6	480g	1.5m	0.25x	58mm	7	70	★★★★	
<b>Canon</b> EF 100-400mm f/4.5-5.6L IS USM	£1180/\$1700	Yes	4.0x	Yes	f/4.5-5.6	1380g	1.8m	0.2x	77mm	5	94	★★★★★	
<b>Canon</b> EF 100-400mm f/4.5-5.6L IS II USM	£2000/\$2200	Yes	4.0x	Yes	f/4.5-5.6	1640g	0.98m	0.31x	77mm	9	100	★★★★★	
<b>Canon</b> EF 200-400mm f/4L IS USM Extender 1.4x	£8750/\$11,800	Yes	2.8x	Yes	f/4	3620g	2.0m	0.15x	52mm	9	77	★★★★★	
<b>Samyang</b> 650-1300mm MC IF f/8-16	£265/\$240	Yes	2.0x	No	f/8-16	2000g	5.0m	0.2x	95mm	0		★★★★	
<b>Sigma</b> 50-500mm f/4.5-6.3 DG OS HSM	£1000/\$1500	Yes	10.0x	Yes	f/4.5-6.3	1970g	0.5-1.8m	0.32x	95mm	9	94	★★★★★	
<b>Sigma</b> 70-200mm f/2.8 EX DG OS HSM	£750/\$1200	Yes	2.9x	Yes	f/2.8	1430g	1.4m	0.13x	77mm	9	98	★★★★★	●
<b>Sigma</b> 70-300mm f/4-5.6 DG Macro	£130/\$150	Yes	4.3x	No	f/4-5.6	545g	0.95m	0.5x	58mm	9	96	★★★★	
<b>Sigma</b> APO 70-300mm f/4-5.6 DG Macro	£150/\$180	Yes	4.3x	No	f/4-5.6	550g	0.95m	0.5x	58mm	9	96	★★★★	●
<b>Sigma</b> 120-300mm f/2.8 DG OS HSM S	£2800/\$3600	Yes	2.5x	Yes	f/2.8	3390g	1.5-2.5m	0.12x	105mm	9	98	★★★★★	
<b>Sigma</b> APO 150-500mm f/5-6.3 DG OS HSM	£700/\$870	Yes	3.3x	Yes	f/5-6.3	1780g	2.2m	0.19x	86mm	9	94	★★★★★	
<b>Sigma</b> 150-600mm f/5-6.3 DG OS HSM S	£1500/\$2000	Yes	4.0x	Yes	f/5-6.3	2860g	2.6m	0.2x	105mm	9			
<b>Sigma</b> 200-500mm f/2.8 EX DG	£12,700/\$26,000	Yes	2.5x	No	f/2.8	15,700g	2.0-5.0m	0.13x	72mm	9			
<b>Sigma</b> 300-800mm f/5.6 EX DG HSM	£5500/\$8000	Yes	2.7x	No	f/5.6	5880g	6.0m	0.14x	46mm	9			
<b>Tamron</b> SP AF 70-200mm f/2.8 Di LD (IF) Macro	£500/\$770	Yes	2.9x	No	f/2.8	1320g	0.95m	0.32x	77mm	9	64	★★★★	
<b>Tamron</b> SP AF 70-200mm f/2.8 Di VC USD	£1000/\$1500	Yes	2.9x	Yes	f/2.8	1470g	1.3m	0.13x	77mm	9	98	★★★★★	
<b>Tamron</b> AF 70-300mm f/4-5.6 Di LD Macro	£130/\$150	Yes	4.3x	No	f/4-5.6	458g	0.95m	0.5x	62mm	9	96	★★★★	
<b>Tamron</b> SP AF 70-300mm f/4-5.6 Di VC USD	£290/\$450	Yes	4.3x	Yes	f/4-5.6	765g	1.5m	0.25x	62mm	9	96	★★★★★	●
<b>Tamron</b> SP 150-600mm F/5-6.3 Di VC USD	£900/\$1070	Yes	4.0x	Yes	f/5-6.3	1951g	2.7m	0.2x	95mm	9	94	★★★★★	●



KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

STANDARD ZOOMS	Price	Full-frame	Max zoom	Image stabilisation	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-S 15-85mm f/3.5-5.6 IS USM	£580/\$800	No	5.7x	Yes	f/3.5-5.6	575g	0.35m	0.21x	72mm	7	84	★★★★	
Canon EF-S 17-55mm f/2.8 IS USM	£575/\$880	No	3.2x	Yes	f/2.8	645g	0.35m	0.17x	77mm	7	84	★★★★★	●
Canon EF-S 17-85mm f/4-5.6 IS USM	£355/\$350	No	5.0x	Yes	f/4-5.6	475g	0.35m	0.2x	67mm	6	72	★★★★	
Canon EF-S 18-55mm f/3.5-5.6 IS II	£150/\$200	No	3.1x	Yes	f/3.5-5.6	200g	0.25m	0.34x	58mm	6	57	★★★★	
Canon EF-S 18-55mm f/3.5-5.6 IS STM	£190/\$250	No	3.1x	Yes	f/3.5-5.6	205g	0.25m	0.36x	58mm	7			
Canon EF 24-70mm f/2.8 II USM	£1550/\$2000	Yes	2.9x	No	f/2.8	805g	0.38m	0.21x	82mm	9	72	★★★★★	
Canon EF 24-70mm f/4L IS USM	£830/\$1000	Yes	2.9x	Yes	f/4	600g	0.38m	0.7x	77mm	9	93	★★★★★	
Canon EF 24-105mm f/3.5-5.6 IS STM	£480/\$600	Yes	4.4x	Yes	f/3.5-5.6	525g	0.4m	0.3x	77mm	7			
Canon EF 24-105mm f/4L IS USM	£730/\$1150	Yes	4.4x	Yes	f/4	670g	0.45m	0.23x	77mm	8	93	★★★★★	
Sigma 17-50mm f/2.8 EX DC OS HSM	£300/\$520	No	2.9x	Yes	f/2.8	565g	0.28m	0.2x	77mm	7	84	★★★★★	
Sigma 17-70mm f/2.8-4 DC Macro OS HSM C	£330/\$500	No	4.1x	Yes	f/2.8-4	465g	0.22m	0.36x	72mm	7	84	★★★★★	
Sigma 18-35mm f/1.8 DC HSM A	£640/\$800	No	1.9x	No	f/1.8	810g	0.28m	0.23x	72mm	9	90	★★★★★	●
Sigma 24-70mm f/2.8 IF EX DG HSM	£595/\$900	Yes	2.9x	No	f/2.8	790g	0.38m	0.19x	82mm	9	93	★★★★★	
Sigma 24-105mm f/4 DG OS HSM A	£680/\$900	Yes	4.4x	Yes	f/4	885g	0.45m	0.22x	82mm	9	85	★★★★★	
Tamron SP AF 17-50mm f/2.8 XR Di II VC	£350/\$650	No	2.9x	Yes	f/2.8	570g	0.29m	0.21x	72mm	7	84	★★★★★	
Tamron SP AF 24-70mm f/2.8 Di VC USD	£800/\$1300	Yes	2.9x	Yes	f/2.8	825g	0.38m	0.2x	82mm	9	93	★★★★★	●
Tamron SP AF 28-75mm f/2.8 XR Di	£360/\$500	Yes	2.7x	No	f/2.8	510g	0.33m	0.26x	67mm	7	57	★★★★	

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

SUPERZOOMS	Price	Full-frame	Max zoom	Image stabilisation	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF-S 18-135mm f/3.5-5.6 IS STM	£340/\$550	No	7.5x	Yes	f/3.5-5.6	480g	0.39m	0.28x	67mm	7	92	★★★★★	
Canon EF-S 18-200mm f/3.5-5.6 IS	£400/\$700	No	11.1x	Yes	f/3.5-5.6	595g	0.45m	0.24x	72mm	6	92	★★★★★	
Canon EF 28-300mm f/3.5-5.6 IS USM	£1900/\$2550	Yes	10.7x	Yes	f/3.5-5.6	1760g	0.7m	0.30x	77mm	8	6	★★★★★	
Sigma 18-200mm f/3.5-6.3 DC Macro OS HSM C	£270/\$400	No	11.1x	Yes	f/3.5-6.3	430g	0.39m	0.33x	62mm	7	92	★★★★★	
Sigma 18-250mm f/3.5-6.3 DC Macro OS HSM	£295/\$350	No	13.9x	Yes	f/3.5-6.3	470g	0.35m	0.34x	62mm	7	92	★★★★★	●
Sigma 18-300mm f/3.5-6.3 DC Macro OS HSM C	£400/\$580	No	16.7x	Yes	f/3.5-6.3	585g	0.39m	0.33x	72mm	7			
Tamron 16-300mm f/3.5-6.3 Di II VC PZD Macro	£480/\$630	No	18.8x	Yes	f/3.5-6.3	540g	0.39m	0.34x	67mm	7	92	★★★★★	●
Tamron AF 18-200mm f/3.5-6.3 XR Di II LD Macro	£135/\$200	No	11.1x	No	f/3.5-6.3	405g	0.45m	0.27x	62mm	7	92	★★★★	
Tamron AF 18-270mm f/3.5-6.3 Di II VC PZD	£330/\$450	No	15.0x	Yes	f/3.5-6.3	450g	0.49m	0.26x	62mm	7	92	★★★★★	
Tamron 28-300mm f/3.5-6.3 Di VC PZD	£570/\$850	Yes	10.7x	Yes	f/3.5-6.3	540g	0.49m	0.29x	67mm	7			
Tamron AF 28-300mm f/3.5-6.3 XR Di LD Macro	£330/\$400	Yes	10.7x	No	f/3.5-6.3	435g	0.49m	0.34x	62mm	9			

KEY: ● BEST VALUE AWARD ● BEST ON TEST AWARD

WIDE-ANGLE PRIMES	Price	Full-frame	Max zoom	Image stabilisation	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 14mm f/2.8L II USM	£1670/\$2250	Yes	None	No	f/2.8	645g	0.2m	0.15x	None	6			
Canon TS-E 17mm f/4L (tilt & shift)	£1660/\$2250	Yes	None	No	f/4	820g	0.25m	0.14x	77mm	8	90	★★★★★	
Canon EF 20mm f/2.8 USM	£410/\$540	Yes	None	No	f/2.8	405g	0.25m	0.14x	72mm	5	100	★★★★	
Canon EF 24mm f/1.4L II USM	£1225/\$1650	Yes	None	No	f/1.4	650g	0.25m	0.17x	77mm	8			
Canon EF 24mm f/2.8 IS USM	£460/\$600	Yes	None	Yes	f/2.8	280g	0.2m	0.23x	58mm	7	100	★★★★★	
Canon EF-S 24mm f/2.8 STM	£170/\$150	Yes	None	No	f/2.8	125g	0.16m	0.27x	52mm	7	100	★★★★	
Canon TS-E 24mm f/3.5L II (tilt & shift)	£1480/\$2000	Yes	None	No	f/3.5	780g	0.21m	0.34x	82mm	8			
Canon EF 28mm f/1.8 USM	£380/\$510	Yes	None	No	f/1.8	310g	0.25m	0.18x	58mm	7	67	★★★★	
Canon EF 28mm f/2.8 IS USM	£410/\$550	Yes	None	Yes	f/2.8	260g	0.23m	0.2x	58mm	7	100	★★★★★	
Canon EF 35mm f/1.4L USM	£1060/\$1480	Yes	None	No	f/1.4	580g	0.3m	0.18x	72mm	8			
Canon EF 35mm f/2 IS USM	£470/\$600	Yes	None	Yes	f/2	335g	0.24m	0.24x	67mm	8	100	★★★★★	
Peleng 8mm f/3.5 Fisheye	£246/\$299	Yes	None	No	f/3.5	400g	0.22m	0.13x	None				
Peleng 17mm f/2.8 Fisheye	£289/\$299	Yes	None	No	f/2.8	630g	0.3m		None				
Samyang 8mm f/3.5 IF MC CSII DH Circular	£230/\$260	Yes	None	No	f/3.5	435g	0.3m	N/S	None	6			
Samyang 10mm f/2.8 ED AS NCS CS	£330/\$385	No	None	No	f/2.8	600g	0.25m	N/S	None	6			
Samyang 12mm f/2.8 ED AS NCS Diagonal	£360/\$350	Yes	None	No	f/2.8	530g	0.2m	N/S	None	7			
Samyang 14 mm f/2.8 IF ED UMC	£265/\$320	Yes	None	No	f/2.8	560g	0.28m	N/S	None	6	74	★★★★	
Samyang 16mm f/2 ED AS UMC CS	£310/\$360	No	None	No	f/2	590g	0.2m	N/S	77mm	8			
Samyang 24mm f/1.4 ED AS UMC	£430/\$530	Yes	None	No	f/1.4	680g	0.25m	N/S	77mm	8			
Samyang T-S 24mm f/3.5 ED AS UMC (tilt & shift)	£900/\$700	Yes	None	No	f/3.5	680g	0.2m	N/S	82mm	8	90	★★★★★	
Samyang 35mm f/1.4 AS UMC AE	£370/\$420	Yes	None	No	f/1.4	660g	0.3m	N/S	77mm	8	100	★★★★★	
Schneider 28mm f/4.5 PC-TS (tilt & shift)	£4980/\$8300	Yes	None	No	f/4.5	1560g	0.15m	0.16x	122mm				
Schneider 50mm f/2.8 PC-TS (tilt & shift)	£2820/\$3365	Yes	None	No	f/2.8	1400g	0.65m	0.11x	90mm	8			
Schneider 90mm f/2.8 PC-TS (tilt & shift)	£2802/\$3180	Yes	None	No	f/2.8	1110g	0.57m	0.25x	104mm	6			
Sigma 4.5mm f/2.8 EX DC HSM Circular Fisheye	£580/\$800	No	None	No	f/2.8	470g	0.14m	0.17x	None	6	87	★★★★★	
Sigma 8mm f/3.5 EX DG Circular Fisheye	£620/\$900	Yes	None	No	f/3.5	400g	0.14m	0.22x	None	6	87	★★★★★	●
Sigma 10mm f/2.8 EX DC HSM Diagonal Fisheye	£480/\$600	No	None	No	f/2.8	475g	0.14m	0.11x	None	7	87	★★★★★	
Sigma 15mm f/2.8 EX DG Diagonal Fisheye	£475/\$610	Yes	None	No	f/2.8	370g	0.15m	0.26x	None	7	44	★★★★★	
Sigma 28mm f/1.8 EX DG Asp Macro	£360/\$450	Yes	None	No	f/1.8	500g	0.2m	0.34x	77mm	9	46	★★★★	
Sigma 35mm f/1.4 DG HSM A	£650/\$900	Yes	None	No	f/1.4	665g	0.3m	0.19x	67mm	9	100	★★★★★	●
Voigtlander 20mm f/3.5 Color-Skopar SL II	£500/\$550	Yes	None	No	f/3.5	240g	0.2m	N/S	52mm	9			
Voigtlander 28mm f/2.8 Color-Skopar	£400/\$530	Yes	None	No	f/2.8	230g	0.22m	N/S	52mm	9			
Voigtlander 40mm f/2 Ultron	£440/\$500	Yes	None	No	f/2	250g	0.38m	N/S	52mm	9			
Zeiss Distagon T* 15mm f/2.8 ZE	£2250/\$2950	Yes	None	No	f/2.8	820g	0.25m	0.11x	95mm	9			
Zeiss Distagon T* 18mm f/3.5 ZE	£1090/\$1400	Yes	None	No	f/3.5	510g	0.3m	0.08x	82mm	9	44	★★★★★	●
Zeiss Distagon T* 21mm f/2.8 ZE	£1450/\$1845	Yes	None	No	f/2.8	720g	0.22m	0.2x	82mm	9			
Zeiss Distagon T* 25mm f/2 ZE	£1270/\$1700	Yes	None	No	f/2	600g	0.25m	0.17x	67mm	9			
Zeiss Distagon T* 28mm f/2 ZE	£980/\$1285	Yes	None	No	f/2	580g	0.24m	0.21x	58mm	9			
Zeiss Distagon T* 35mm f/1.4 ZE	£1450/\$1845	Yes	None	No	f/1.4	850g	0.3m	0.2x	72mm	9			
Zeiss Distagon T* 35mm f/2 ZE	£850/\$1120	Yes	None	No	f/2	570g	0.3m	0.19x	58mm	9			



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### STANDARD PRIMES

**KEY:** ● BEST VALUE AWARD ● BEST ON TEST AWARD

STANDARD PRIMES	Price	Full-frame	Max zoom	Image stabilisation	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 40mm f/2.8 STM	£160/\$200	Yes	None	No	f/2.8	130g	0.3m	0.18x	52mm	7	90	★★★★★	●
Canon TS-E 45mm f/2.8 (tilt & shift)	£1130/\$1400	Yes	None	No	f/2.8	645g	0.4m	0.16x	72mm	8		★★★★★	
Canon EF 50mm f/1.2L USM	£1150/\$1550	Yes	None	No	f/1.2	580g	0.45m	0.15x	72mm	8	21	★★★★★	
Canon EF 50mm f/1.4 USM	£280/\$400	Yes	None	No	f/1.4	290g	0.45m	0.15x	58mm	8	93	★★★★★	●
Canon EF 50mm f/1.8 II	£80/\$125	Yes	None	No	f/1.8	130g	0.45m	0.15x	52mm	5	67	★★★★	●
Samyang 50mm f/1.4 AS UMC	£420/\$440	Yes	None	No	f/1.4	575g	0.45m	N/S	77mm	8		★★★★	
Sigma 30mm f/1.4 DC HSM A	£370/\$500	No	None	No	f/1.4	435g	0.3m	0.15x	62mm	9	100	★★★★	●
Sigma 50mm f/1.4 EX DG HSM	£320/\$400	Yes	None	No	f/1.4	520g	0.5m	0.14x	77mm	9		★★★★	
Sigma 50mm f/1.4 DG HSM A	£670/\$950	Yes	None	No	f/1.4	815g	0.4m	0.18x	77mm	9	90	★★★★★	
Zeiss Planar T* 50mm f/1.4 ZE	£560/\$725	Yes	None	No	f/1.4	380g	0.45m	0.15x	58mm	9		★★★★★	
Zeiss Otus 55mm f/1.4	£3170/\$3990	Yes	None	No	f/1.4	1030g	0.5m	0.15x	77mm	9		★★★★★	

### TELEPHOTO PRIMES

**KEY:** ● BEST VALUE AWARD ● BEST ON TEST AWARD

TELEPHOTO PRIMES	Price	Full-frame	Max zoom	Image stabilisation	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 85mm f/1.2L II USM	£1550/\$2100	Yes	None	No	f/1.2	1025g	0.95m	0.11x	72mm	8	21	★★★★★	
Canon EF 85mm f/1.8 USM	£290/\$420	Yes	None	No	f/1.8	425g	0.85m	0.13x	58mm	8	46	★★★★★	●
Canon TS-E 90mm f/2.8 (tilt & shift)	£1125/\$1400	Yes	None	No	f/2.8	565g	0.5m	0.29x	58mm	8		★★★★★	
Canon EF 100mm f/2 USM	£360/\$500	Yes	None	No	f/2	460g	0.9m	0.14x	58mm	8	46	★★★★★	
Canon EF 135mm f/2L USM	£770/\$1050	Yes	None	No	f/2	750g	0.9m	0.19x	72mm	8		★★★★★	
Canon EF 200mm f/2L IS USM	£4450/\$6000	Yes	None	Yes	f/2	2520g	1.9m	0.12x	52mm	8	98	★★★★★	
Canon EF 200mm f/2.8L II USM	£570/\$780	Yes	None	No	f/2.8	765g	1.5m	0.16x	72mm	8	98	★★★★★	
Canon EF 300mm f/2.8L IS II USM	£4900/\$6600	Yes	None	Yes	f/2.8	2400g	2.0m	0.18x	52mm	9	54	★★★★★	
Canon EF 300mm f/4L IS USM	£1080/\$1450	Yes	None	Yes	f/4	1190g	1.5m	0.24x	77mm	8	64	★★★★★	
Canon EF 400mm f/2.8L IS II USM	£7700/\$10,500	Yes	None	Yes	f/2.8	3850g	2.7m	0.17x	52mm	9	54	★★★★★	
Canon EF 400mm f/4 DO IS II USM	£7000/\$6900	Yes	None	Yes	f/4	2100g	3.3m	0.13x	52mm	9		★★★★★	
Canon EF 400mm f/5.6L USM	£990/\$1340	Yes	None	No	f/5.6	1250g	3.5m	0.12x	77mm	8	94	★★★★	
Canon EF 500mm f/4L IS II USM	£6900/\$9500	Yes	None	Yes	f/4	3190g	3.7m	0.15x	52mm	9		★★★★	
Canon EF 600mm f/4L IS II USM	£8900/\$12,000	Yes	None	Yes	f/4	3920g	4.5m	0.15x	52mm	9		★★★★	
Canon EF 800mm f/5.6L IS USM	£10,000/\$13,500	Yes	None	Yes	f/5.6	4500g	6.0m	0.14x	52mm	8		★★★★	
Samyang 85mm f/1.4 IF MC	£230/\$260	Yes	None	No	f/1.4	513g	1.0m	N/S	72mm	8		★★★★	
Samyang 135mm f/2 ED UMC	£380/\$600	Yes	None	No	f/2	830g	0.8m	N/S	77mm	9		★★★★	
Samyang 500mm MC IF f/6.3 Mirror	£125/\$150	Yes	None	No	f/6.3	705g	2.0m	N/S	95mm	0		★★★★	
Samyang 500mm MC IF f/8 Mirror	£105/\$130	Yes	None	No	f/6.3	320g	1.7m	N/S	72mm	0		★★★★	
Samyang 800mm MC IF f/8 Mirror	£170/\$200	Yes	None	No	f/8	870g	3.5m	N/S	30mm	0		★★★★	
Sigma 85mm f/1.4 EX DG HSM	£650/\$970	Yes	None	No	f/1.4	725g	0.85m	0.12x	77mm	9		★★★★	
Sigma APO 300mm f/2.8 EX DG HSM	£2280/\$3400	Yes	None	No	f/2.8	2400g	2.5m	0.13x	46mm	9	98	★★★★	
Sigma APO 500mm f/4.5 EX DG HSM	£3770/\$5000	Yes	None	No	f/4.5	3150g	4.0m	0.13x	46mm	9		★★★★	
Sigma APO 800mm f/5.6 EX DG HSM	£4320/\$8000	Yes	None	No	f/5.6	4.9kg	7.0m	0.11x	46mm	9	21	★★★★	
Zeiss Planar T* 85mm f/1.4 ZE	£990/\$1285	Yes	None	No	f/1.4	670g	1.0m	0.1x	72mm	9		★★★★	
Zeiss Apo Sonnar T* 135mm f/2 ZE	£1600/\$2125	Yes	None	No	f/2	930g	0.8m	0.25x	77mm	9		★★★★	

**KEY:** ● BEST VALUE AWARD ● BEST ON TEST AWARD

MACRO	Price	Full-frame	Max zoom	Image stabilisation	Max aperture	Weight	Min focus distance	Max magnification	Filter size	Iris blades	Issue reviewed	Rating	Awards
Canon EF 50mm f/2.5 Compact Macro	£205/\$300	Yes	None	No	f/2.5	280g	0.23m	0.5x	52mm	6	50	★★★★	
Canon EF-S 60mm f/2.8 Macro USM	£350/\$470	No	None	No	f/2.8	335g	0.20m	1.0x	52mm	7	85	★★★★	
Canon MP-E65mm f/2.8 1-5x Macro	£850/\$1050	Yes	None	No	f/2.8	710g	0.24m	5.0x	58mm	6	50	★★★★	
Canon EF 100mm f/2.8 Macro USM	£385/\$600	Yes	None	No	f/2.8	600g	0.31m	1.0x	58mm	8	85	★★★★	
Canon EF 100mm f/2.8L Macro IS USM	£700/\$950	Yes	None	Yes	f/2.8	625g	0.3m	1.0x	67mm	9	85	★★★★	
Canon EF 180mm f/3.5L Macro USM	£1110/\$1500	Yes	None	No	f/3.5	1090g	0.48m	1.0x	72mm	8	69	★★★★	
Sigma Macro 70mm f/2.8 EX DG	£360/\$450	Yes	None	No	f/2.8	525g	0.26m	1.0x	62mm	9	85	★★★★	
Sigma Macro 105mm f/2.8 EX DG OS HSM	£380/\$670	Yes	None	Yes	f/2.8	725g	0.31m	1.0x	62mm	9	85	★★★★★	●
Sigma APO Macro 150mm f/2.8 EX DG OS HSM	£700/\$1100	Yes	None	Yes	f/2.8	1150g	0.38m	1.0x	72mm	9	85	★★★★★	
Sigma APO Macro 180mm f/2.8 EX DG OS HSM	£1200/\$1700	Yes	None	Yes	f/2.8	1640g	0.47m	1.0x	86mm	9	69	★★★★★	
Tamron SP AF 60mm f/2 Di II LD (IF) Macro	£330/\$525	No	None	No	f/2	350g	0.23m	1.0x	55mm	7	69	★★★★	
Tamron SP AF 90mm f/2.8 Di Macro	£370/\$500	Yes	None	No	f/2.8	400g	0.29m	1.0x	55mm	9	85	★★★★	
Tamron SP AF 90mm f/2.8 Di Macro VC USD	£400/\$750	Yes	None	Yes	f/2.8	550g	0.3m	1.0x	58mm	9	85	★★★★★	
Tamron SP AF 180mm f/3.5 Di Macro	£700/\$740	Yes	None	No	f/3.5	985g	0.47m	1.0x	72mm	7	69	★★★★	
Tokina 100mm f/2.8 AT-X PRO Macro	£370/\$380	Yes	None	No	f/2.8	540g	0.3m	1.0x	55mm	9	50	★★★★	
Zeiss Makro Planar T* 50mm f/2 ZE	£1000/\$1450	Yes	None	No	f/2	570g	0.24m	0.5x	67mm	9		★★★★	
Zeiss Makro Planar 100mm f/2 T* ZE	£1450/\$1845	Yes	None	No	f/2	680g	0.44m	0.5x	67mm	9	50	★★★★	



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\*Prices include £250 cashback from Canon UK. Offer available 5th March - 6th May 2015. T&Cs apply

## Canon EOS 5Ds / 5Ds R

Combine fast, instinctive DSLR handling with 50.6-megapixel resolution, and capture exquisite detail in every moment. The EOS 5Ds will transform the way you look at the world.

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24mm f/1.4L Mk II USM	£1,224.00	400mm f/4.0 DO IS II USM	See web	24-70mm f/4.0L IS USM	£634.00*
24mm f/2.8 IS USM	£458.00	400mm f/5.6L USM	£929.00	24-105mm f/4.0L IS USM	£749.00
EF-S 24mm f/2.8 STM NEW	£149.00	500mm f/4.0L USM IS MK II	£6,899.00	24-105mm (White Box)	£599.00
28mm f/1.8 USM	£379.00	600mm f/4.0L USM IS MK II	£8,895.00	24-105mm f/4.0-5.6 IS STM	£459.00
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**Canon EOS 700D**

18.0 megapixels  
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1080p movie mode

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700D + 18-135mm IS STM + 40mm STM £799



**Canon EOS 70D**

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7.0 fps  
1080p movie mode

**70D** From **£749**

70D Body £749  
70D + 18-55mm f3.5-5.6 IS STM £838

CUSTOMER REVIEW: 70D Digital SLR Camera Body  
★★★★★ 'Perfectly priced for perfect pictures' *Never fly love - Essex*



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5.0 fps  
1080p movie mode

**up to £40 CASHBACK\*** when bought with selected lenses

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10.0 fps  
1080p movie mode

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7D Mark II Body £1429

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**Canon EOS 6D**

20.2 megapixels  
4.5 fps  
1080p movie mode  
full frame CMOS sensor

**6D** From **£1169**

6D Body £1169  
6D + 24-70mm f4.0 L IS USM £1849

CUSTOMER REVIEW: 6D Digital SLR Camera Body  
★★★★★ 'Should have bought it sooner' *Devon dumpling - North Devon*



**Canon EOS 5D Mk III**

22.3 megapixels  
6.0 fps  
1080p movie mode  
Full Frame CMOS sensor

**5D Mark III** From **£2249**

5D Mark III Body £2249  
5D Mark III + 24-105mm f4.0L IS USM £2749

CUSTOMER REVIEW: 5D Mark III Digital SLR Camera Body  
★★★★★ '2 years in review' *mlke-a - Sussex*



**Canon EOS 5DS** **NEW**

50.6 megapixels  
5.0 fps  
Full Frame CMOS sensor

**up to £250 CASHBACK\*** when bought with selected lenses

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Read our 5DS review on our blog at [wex.co.uk/blog](http://wex.co.uk/blog)



**Canon EOS 1D X**

18.1 megapixels  
12.0 fps  
Full Frame Sensor

**1D X Body** From **£4499**

1D X Body £4499

CUSTOMER REVIEW: 1D X Digital SLR Camera Body  
★★★★★ 'A brilliant piece of kit' *Steve F - North Yorkshire*

## DSLR Lenses - Canon, Sigma & Tamron



**Canon EF 40mm f2.8 STM**

**£149**



**EF 200-400mm f4 L IS USM with internal 1.4x extender**

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**EF 24-70mm f2.8 L USM II**

**£1479**



**EF 70-200mm f2.8 L IS USM II**

**£1599**



**SIGMA 35mm f1.4 DG HSM**

**£636**



**TAMRON 70-200mm f2.8 SP Di VC USD**

**£999** RRP £1649.99

CANON EF 14mm f2.8 L II USM.....	£1668	CANON EF 16-35mm f2.8 L USM II.....	£1149
CANON TS-E 17mm f4.0 L.....	£1659	CANON EF 16-35mm f4 L IS USM.....	£794.24
CANON EF 20mm f2.8 USM.....	£385	CANON EF 17-40mm f4.0 L USM.....	£569
CANON EF 24mm f1.4 L USM II.....	£1224	CANON EF-S 17-55mm f2.8 IS USM.....	£532
CANON EF-S 24mm f2.8 Pancake.....	£149	CANON EF-S 17-85mm f4.0-5.6 IS USM.....	£356
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CANON EF 28mm f1.8 USM.....	£379	CANON EF-S 18-135mm f3.5-5.6 IS STM.....	£313
CANON EF 35mm f1.4 L USM.....	£1029	CANON EF-S 18-200mm f3.5-5.6 IS.....	£389
CANON TS-E 45mm f2.8.....	£1129	CANON EF 24-105mm f3.5-5.6 IS STM.....	£379
CANON EF 50mm f1.2 L USM.....	£1067	CANON EF 24-105mm f4.0 L IS USM.....	£727
CANON EF 50mm f2.5 Macro.....	£219	CANON EF 28-135mm f3.5-5.6 IS USM.....	£359
CANON EF-S 60mm f2.8 USM Macro.....	£333	CANON EF 28-300mm f3.5-5.6 L IS USM.....	£1899
CANON MP-E 65mm f2.8 1-5x Macro.....	£853	CANON EF-S 55-250mm f4.0-5.6 IS II.....	£208
CANON EF 85mm f1.2 L USM II.....	£1499	CANON EF 70-200mm f4.0 L IS USM.....	£892.72
CANON EF 100mm f2.8 L IS USM Macro.....	£669	CANON EF 70-300mm f4.0-5.6 L IS USM.....	£959
CANON EF 135mm f2.0 L USM.....	£768	CANON EF 75-300mm f4.0-5.6 USM III.....	£219
CANON EF 180mm f3.5 L USM Macro.....	£1049	CANON EF 100-400mm f4.5-5.6 L IS USM.....	£1029
CANON EF 200mm f2.8 L IS USM II.....	£569	CANON NEW EF 100-400mm f4.5-5.6 L IS II USM.....	£1999
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CANON EF 400mm f4.0 DO IS USM II.....	£6999	CANON NEW EF 11-24mm f4 L USM.....	£2799
CANON EF 500mm f4 L IS USM II.....	£6899	CANON TS-E 24mm f3.5 L II Lens.....	£1479
CANON EF 8-15mm f4.0 L USM Fisheye.....	£961	CANON EF 50mm f1.4 USM.....	£244
CANON EF-S 10-22mm f3.5-4.5 USM.....	£433	CANON EF 24-70mm f4 L IS USM Lens.....	£799
CANON EF-S 15-85mm f3.5-5.6 IS USM.....	£542		

**SIGMA - Canon Fit Lenses**

SIGMA 50mm f1.4 EX DG HSM.....	£319
SIGMA 85mm f1.4 EX DG HSM.....	£649
SIGMA 105mm f2.8 APO EX DG OS HSM Macro.....	£379
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SIGMA 10-20mm f4.0-5.6 EX DC HSM.....	£345
SIGMA 17-70mm f2.8-4 DC OS.....	£329
SIGMA 18-200mm f3.5-6.3 DC OS HSM II.....	£239
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SIGMA 18-300mm f3.6-6.3 C DC Macro.....	£399
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SIGMA NEW 150-600mm f5.0-6.3 C DG OS HSM.....	£899
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**TAMRON - Canon Fit Lenses**

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TAMRON 18-270mm f3.5-6.3 Di II VC PZD.....	£269
TAMRON 28-75mm f2.8 XR Di Lens.....	£359
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TAMRON 28-300mm f3.5-6.3 Di VC PZD.....	£569

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Canon EOS 700D	BG-E8	LP-E8	DigiCover	HL-E8	ACK-E8	RS-60E3	RC-6	HTC-100	IFC-200U	Angle Finder C	EP-EX15II	Frame EF	DioSeries	CUP-EF	EW-100DIII	EH-19L
	£119	£39	£5.99	£22.99	£81.99	£13.99	£14.99	£46.99	£19.99	£169.99	£17.99	£8.99	£10.99	£8.99	£19.99	£34.99

Canon EOS 70D

BG-E14	LP-E6	CBC-E6	LC-E6E	HL-E6	ACK-E6	RC-6	HTC-100	AVC-D000T	Angle Finder C	Eyecup EB	Focusing Screen EF-D	Hand Strap E2	RS-60E3	EH21-L	10EG
£159	£64.95	£152.99	£43.99	£28	£109.99	£14.99	£46.99	£20.99	£169.99	£6.49	£22.99	£29.99	£13.99	£119.95	£69.99

Canon EOS 7D Mk II

BG-E16	LP-E6N	CBC-E6	HL-E6	ACK-E6	RS-80N3	RC-6	HTC-100	IFC-500U	Angle Finder C	Anti-Fog Eyecup EG	WFT-E5B	Hand Strap E2	EW-E0570	Wide Strap	10EG
£249	£79	£152.99	£28	£109.99	£39	£14.99	£46.99	£29.99	£169.99	£30.99	£14.99	£419	£29.99	£19.99	£69.99

Canon EOS 5D Mk III

BG-E11	LP-E6	CBC-E6	HL-E6	ACK-E6	RS-80N3	LC-5 Set	HTC-100	IFC-200U	Angle Finder C	Anti-Fog Eyecup EG	Eyecup EB	Focusing Screen EF-D	WFT-E7B	L7 Strap	10EG
£249	£64.95	£152.99	£28	£109.99	£39	£349.99	£46.99	£17.99	£169.99	£30.99	£6.49	£30.99	£599	£18.49	£69.99



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£449



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PowerShot Models			
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Hadley Digital Imperial Blue

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Pro1 Digital UV Filters:  
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62mm .....£32  
67mm .....£38  
72mm .....£42  
77mm .....£46  
82mm .....£52  
HMC UV(C) Filters:  
37mm .....£12.99

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**TIFFEN ND 3.0 10 Stop Filters:**  
52mm .....£14  
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58mm .....£19  
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67mm .....£24  
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**52 AF-1**  
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**L308s**  
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**L478 DR**  
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**Mini TT1**  
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**Lastolite Ezybox Softbox**  
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400Rx £619

**D-Lite One Rx Kit**  
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**D-Lite 2 Rx Kit**  
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\*CASHBACKS are redeemed via product registration with the manufacturer. Please refer to our website for details.

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### PRINTER INK CARTRIDGES



## EPSON

COMPATIBLE & ORIGINAL INK



At Premier Ink Supplies, we stock two types of cartridges for Epson printers - **Originals**, which are made by Epson, and **Compatibles**, which are made by a UK company called **Jet Tec**. Using **Jet Tec Compatibles** is a way of saving money, without compromising on the quality of your prints. Here're the results from two independent ink tests that agree...

**Digital**  
PHOTOGRAPHY

**Ink Test Winner**



"Jet Tec's colours were superb, with single greys and blacks very close to Epson ...so Jet Tec wins!"  
- Total Digital Photography Magazine

"What we're looking at here is not only the best choice of ink for the R300 printer, but also the best ink in this group test, period. There's just no getting away from the superb combination of performance and pricing!"  
- Computer Upgrade Magazine

Cartridge Code:	Originals:	Jet Tec Compatibles:	Suitable EPSON Printers:
T007 Black	£29.99 16ml	£3.99 20ml, 3 for £10.99	Photo 790, 870, 890, 895, 900, 915, 1290
T008 Colour	£23.99 46ml	£4.99 50ml, 3 for £13.99	Photo 790, 870, 890, 895, 915
T009 Colour	£29.99 66ml	£4.99 70ml, 3 for £13.99	Photo 900, 1270, 1290
T026 Black	£39.99 16ml	£3.99 20ml, 3 for £10.99	Photo 810, 830, 830u, 925, 935
T027 Colour	£129.99 46ml	£4.99 50ml, 3 for £13.99	
T0341-T0347 Set of 7	£126.99 set of 7	Check Website.	Photo 2100
T0341/8, each	£15.99 17ml	Check Website.	Chameleon Inks
T0342/3/4, each	£18.99 17ml	Check Website.	
T0345/6/7, each	£18.99 17ml	Check Website.	
T0441-T0454 Set of 4	£49.99 set of 4	£14.99, 3 sets for £42.99	C64, C66, C84, C86,
T0441 Black	£21.99 13ml	£4.99 21ml, 3 for £13.99	CX3600/3650, CX6400, CX6600
T0452/3/4, each	£11.99 8ml	£3.99 21ml, 3 for £10.99	Parasol Inks
T0481-T0486 Set of 6	£69.99 set of 6	£19.99, 3 sets for £56.99	R200, R220, R300, R320, R340
T0481/2/3, each	£16.99 13ml	£3.99 21ml, 3 for £10.99	RX500, RX600, RX620, RX640
T0484/5/6, each	£16.99 13ml	£3.99 21ml, 3 for £10.99	Seahorse Inks
T0540-T0549 Set of 8	£109.99 set of 8	£35.99, 3 sets for £99.99	Photo R800, R1800
T0540 Gloss	£8.99 13ml	£3.99 21ml, 3 for £13.99	Frog Inks
T0541/2/3/4, each	£14.99 13ml	£4.99 21ml, 3 for £13.99	Photo R240, R245,
T0547/8/9, each	£14.99 13ml	£4.99 21ml, 3 for £13.99	RX420, RX425, RX520, RX525
T0551-T0554 Set of 4	£34.99 set of 4	£14.99, 3 sets for £42.99	Duck Inks
T0551 Black	£8.99 6ml	£4.99 21ml, 3 for £10.99	Photo R240
T0552/3/4, each	£8.99 6ml	£3.99 21ml, 3 for £10.99	Lilly Inks
T0591-T0599 Set of 8	£99.99 set of 8	Check Website.	D68, D88,
T0591/2/3, each	£12.99 13ml	Check Website.	DX3800/3850, DX4200/4250, DX4800/4850
T0594/5/6, each	£12.99 13ml	Check Website.	Teddy Bear Inks
T0597/8/9, each	£12.99 13ml	Check Website.	S20, S21, SX100/105/110/115/200/205/210/215
T0611-T0614 Set of 4	£34.99 set of 4	£14.99, 3 sets for £42.99	SX400/405/415/515, D78/92/120, B40W, BX300
T0611 Black	£8.99 6ml	£4.99 13ml, 3 for £13.99	DX4000/4400/5000/6000/7000/7400/8400/9400
T0612/3/4, each	£8.99 6ml	£3.99 13ml, 3 for £10.99	Photo 1400
T0711-T0714 Set of 4	£34.99 set of 4	Check Website.	Owl Inks
T0711 Black	£8.99 7.5ml	Check Website.	Photo P50, PX650/660/700W/710W/720W,
T0712/3/4, each	£8.99 7.5ml	Check Website.	PX730W/800FW/810FW/830FW/830FW
T0791-T0796 Set of 6	£74.99 set of 6	Check Website.	R265/285/360, RX560/585/685
T0791/2/3, each	£12.99 10ml	Check Website.	Photo R1900
T0794/5/6, each	£12.99 10ml	Check Website.	Flamingo Inks
T0801-T0806 Set of 6	£129.99 set of 6	£19.99, 3 sets for £57.99	Photo R2880
T0801/2/3, each	£8.99 7.4ml	£3.99 13ml, 3 for £10.99	Husky Inks
T0804/5/6, each	£8.99 7.4ml	£3.99 13ml, 3 for £10.99	S22, SX125/130, SX420W/425W/445W,
T0870-T0879 Set of 8	£74.99 set of 8	Check Website.	BX305F
T0870 Gloss	£7.99 11.4ml	Check Website.	Fox Inks
T0871/2/3/4, each	£9.99 11.4ml	Check Website.	SX420W/425W/445W/525W/620FW,
T0877/8/9, each	£9.99 11.4ml	Check Website.	BX305F/320FW/525W/535W/625FW/630FW,
T0961-T0969 Set of 8	£74.99 set of 8	Check Website.	BX635FW/639FW/639FW/639FW, B42WD
T0961/2/3/4/5, each	£9.99 11.4ml	Check Website.	Photo R3000 Turtle Inks
T0966/7/8/9, each	£9.99 11.4ml	Check Website.	Photo R2000 Kingfisher Inks
T1281-T1284 Set of 4	£29.99 set of 4	£14.99 set of 4	Photo R2700 Penguin Inks
T1281 Black	£7.99 6.9ml	£4.99 13ml	Workforce WF-2010W, 2510WF, 2520NF,
T1282/3/4, each	£7.99 6.9ml	£3.99 10ml	2530WF, 2540WF
T1291-T1294 Set of 4	£42.99 set of 4	£16.99 set of 4	Fountain Pen Inks
T1291 Black	£10.99 11.2ml	£5.49 16ml	Workforce WF-2010W, 2510WF, 2520NF,
T1292/3/4, each	£10.99 7ml	£4.49 13ml	2530WF, 2540WF
T1571-9, each	£20.99 25.9ml each or £164.99 set of 8		High Capacity Fountain Pen Inks
T1591-9, each	£14.99 17ml each or £177.99 set of 8		Expression Home XP30, XP102, XP202, XP205
T5591-6, each	£13.99 13ml each or £74.99 set of 6		XP302, XP305, XP402, XP405
T5801-9, each	£41.99 80ml each or £329.99 set of 8		Daisy Inks
No.16 Set of 4	£24.99 set of 4	£14.99 set of 4	Expression Photo XP750, XP850
No.16 Black	£7.99 5.4ml	£4.99 18ml	Elephant Inks
No.16 C/M/Y, each	£5.99 3.1ml	£3.99 13ml	Expression Photo XP750, XP850
No.16XL Set of 4	£44.99 set of 4	£14.99 set of 4	High Capacity Elephant Inks
No.16XL Black	£14.99 12.9ml	£4.99 16ml	Expression Premium XP600, XP605, XP700,
No.16XL C/M/Y, each	£11.99 6.5ml	£3.99 13ml	XP800
No.18 Set of 4	£22.99 set of 4	£14.99 set of 4	Polar Bear Inks
No.18 Black	£7.99 5.2ml	£4.99 18ml	Expression Premium XP600, XP605, XP700,
No.18 C/M/Y, each	£5.99 3.3ml	£3.99 13ml	XP800
No.18XL Set of 4	£46.99 set of 4	£14.99 set of 4	High Capacity Polar Bear Inks
No.18XL Black	£14.99 11.5ml	£4.99 18ml	
No.18XL C/M/Y, each	£11.99 6.6ml	£3.99 13ml	
No.24 Set of 6	£44.99 set of 6		
No.24 B/L/C/L/M, each	£7.99 5.1ml		
No.24 C/M/Y, each	£7.99 4.8ml		
No.24XL Set of 6	£69.99 set of 6		
No.24XL B/L/C/L/M, each	£11.99 9.8ml		
No.24XL C/M/Y, each	£11.99 8.7ml		
No.26 Set of 4 (no PB)	£30.99 set of 4		
No.26 Black	£8.99 6.2ml		
No.26 Photo Black	£7.99 4.7ml		
No.26 C/M/Y, each	£7.99 4.5ml		
No.26XL Set of 4 (no PB)	£54.99 set of 4		
No.26XL Black	£14.99 12.1ml		
No.26XL Photo Black	£13.99 8.7ml		
No.26XL C/M/Y, each	£13.99 9.7ml		

If you cannot find the ink cartridges for your printer, please check our website, or give us a call, and we'll do our best to help. We stock what is probably the UK's largest range of ink cartridges and photo paper, including wide format ink cartridges and roll papers.

### Canon

#### Canon Originals

BC16 All colours, 13ml, each	£8.99
PG15 Black 26ml	£12.99
CL18 All colours, 13ml, each	£10.99
CL142 All colours, 13ml, each	£10.99
CL142 Set of 8	£79.99
PG19 All colours, 14ml, each	£9.99
PG19 Set of 10	£89.99
PG129 All colours, 36ml, each	£22.99
PG129 Set of 12	£269.99
PG172 All colours, 14ml, each	£10.99
PG172 Set of 10	£99.99
PG1520 Black 19ml	£10.99
CL1521 B/C/M/Y/GY 9ml	£9.99
PG1520/CL1521 Set of 5	£46.99
PG1520 Black 19ml	£10.99
CL1526 B/C/M/Y/GY 9ml	£9.99
PG1525/CL1526 Set of 5	£46.99
PG1550 Black 15ml	£10.99
CL1551 B/C/M/Y/GY 7ml	£8.99
PG1550/CL1551 Set of 5	£42.99
PG40 Black 16ml	£14.99
PG50 Black 22ml	£21.99
PG510 Black 9ml	£11.99
PG512 Black 15ml	£16.99
PG540XL Black 21ml	£17.99
PG545XL Black 15ml	£16.99
CL41 Colour 12ml	£18.99
CL51 Colour 21ml	£25.99
CL511 Colour 9ml	£15.99
CL513 Colour 13ml	£20.99
CL541XL Colour 15ml	£19.99
CL546XL Colour 13ml	£18.99

#### Canon Compatibles

BC16 All colours, 15ml, each	£2.99
PG15 Black 29ml	£4.99
CL18 B/C/M/Y/PC/PM 15ml	£3.99
PG1520 Black 19ml	£4.99
CL1521 B/C/M/Y/GY 9ml	£3.99
PG1525 Black 18ml	£4.99
CL1526 B/C/M/Y/GY 9ml	£3.99
PG1550XL Black 25ml	£4.99
CL1551XL B/C/M/Y/GY 12ml	£3.99
PG40 Black 28ml	£13.99
PG50 Black 28ml	£12.99
PG510 Black 11.5ml	£14.99
PG512 Black 18ml	£13.99
PG540XL Black 21ml	£13.99
CL41 Colour 16ml	£16.99
CL51 Colour 24ml	£14.99
CL512 Colour 11.5ml	£15.99
CL513 Colour 15ml	£16.99
CL541XL Colour 15ml	£15.99

Many more in stock!

### hp

#### HP Originals

No.38 All Colours 27ml each	£26.99
No.300 Black 4ml	£10.99
No.300 Colour 4ml	£12.99
No.301 Black 3ml	£9.99
No.301 Colour 3ml	£11.99
No.337 Black 11ml	£18.99
No.338 Black 11ml	£18.99
No.339 Black 21ml	£25.99
No.343 Colour 7ml	£20.99
No.344 Colour 14ml	£28.99
No.350 Black 4.5ml	£11.99
No.351 Colour 3.5ml	£14.99
No.363 Black 6ml	£13.99
No.363 C/M/Y/PC/PM each	£9.99
No.364 Black 6ml	£7.99
No.364 B/C/M/Y/3ml each	£6.99
No.364 Set of 4	£22.99
No.901 Black 4ml	£11.99
No.901 Colour 9ml	£14.99
No.920XL Set of 4	£46.99
No.932XL Black 22.5ml each	£21.99
No.933XL C/M/Y 8.5ml each	£9.99
No.940XL Set of 4	£69.99
No.950XL Black 53ml each	£24.99
No.951XL C/M/Y 24ml each	£17.99

#### HP Compatibles

No.15 Black 46ml	£4.99
No.21 Black 10ml	£7.99
No.22 Colour 21ml	£11.99
No.45 Black 45ml	£4.99
No.56 Black 24ml	£9.99
No.57 Colour 24ml	£12.99
No.78 Colour 36ml	£9.99
No.110 Colour 12ml	£10.99
No.300XL Black 18ml	£14.99
No.300XL Colour 18ml	£16.99
No.301XL Black 15ml	£14.99
No.301XL Colour 18ml	£16.99
No.336 Black 10ml	£7.99
No.337 Black 10ml	£10.99
No.338 Black 21ml	£10.99
No.339 Black 34ml	£12.99
No.342 Colour 12ml	£10.99
No.343 Colour 21ml	£12.99
No.344 Colour 21ml	£14.99
No.348 Photo 21ml	£12.99
No.350XL Black 30ml	£14.99
No.351XL Colour 20ml	£16.99
No.363 Black 20ml	£6.99
No.363 C/M/Y/PC/PM each	£4.99
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### brother

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#### Brother Compatibles

LC900 Set of 4	£11.99
LC970 / 1000 Set of 4	£11.99
LC980 / 1100 Set of 4	£11.99
LC985 Set of 4	£11.99
LC1240 Set of 4	£11.99
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No.28 Black	£18.99
No.29 Colour	£19.99
No.32 Black	£22.99
No.33 Colour	£24.99
No.36 Black	£19.99
No.37 Colour	£20.99
No.100 Set of 4	£39.99

#### Lexmark Compatibles

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No.2 Colour	£11.99
No.3 Black	£14.99
No.16 Black	£11.99
No.17 Black	£9.99
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**DMW-BLE13 for Panasonic** £19.99

**DMW-BLE9 for Panasonic** £12.99

**DMW-BLF19 for Panasonic** £19.99

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## Chris George's **CANONDRUM**

How much do you really know about Canon photography?  
Test yourself to the max every issue with our tricky trivia quiz!

**01 NFC is a hot new feature for Canon EOS DSLRs. What is it?**

- A** Near field communication
- B** Neuro focusing control
- C** Nano fluoro coating
- D** Nano frequency communication

**02 If you photograph a white cat against a white background using aperture priority mode, which of these things should you do?**

- A** Dial in a narrow aperture to ensure the picture is not overexposed
- B** Set exposure compensation to +1 or higher to ensure the shot is not overexposed
- C** Set exposure compensation to +1 or higher to ensure the shot is not underexposed
- D** Set exposure compensation to -1 or lower to ensure the shot is not overexposed

**03 Name this Hollywood blockbuster starring James Woods and his trusty Canon F1**

- A** Brazil
- B** Salvador
- C** Once upon a time in America
- D** Platoon

**04 Which isn't a free program included on the software disc that comes with every Canon SLR?**

- A** Digital Photo Professional
- B** EOS Utility
- C** Photo Stitch Editor
- D** EOS Remote Capture

**05 The 60Da is a specially modified version of Canon's popular 60D designed for a special type of photography, signified by the 'a'. So what is it for?**

- A** Aerial photography
- B** Astrophotography
- C** Architectural photography
- D** Aura photography



**06 Which of these accessories is not designed for getting really close to subjects like flowers?**

- A** Macro lens
- B** Extension tube
- C** Reversing ring
- D** Extender

**07 How much depth of field you get depends on:**

- A** How close you are to the subject
- B** The f-number you are using
- C** How far you are zoomed in
- D** All of the above (and more)!

**08 A photographer takes a perfectly exposed seascape with an exposure of 1/60 sec at f/16 at ISO100 in manual mode. If she adds a ten-stop ND filter, what shutter**



**speed should she now use, without changing the aperture or sensor sensitivity?**

- A** 0 seconds
- B** 30 seconds
- C** 15 seconds
- D** 6 minutes

**09 What three letters are used to denote Canon's perspective control lenses, much loved by architectural photographers?**

- A** EF-S
- B** TS-E
- C** STM
- D** CN-E



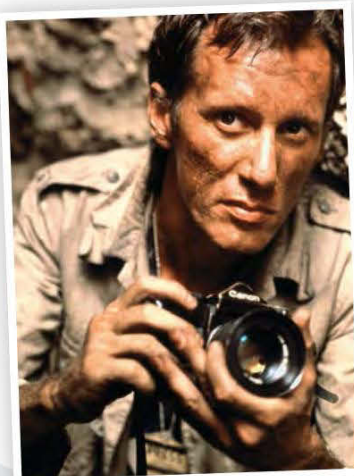
**10 PhotoPlus is 100 issues old this issue... but how old is the digital camera this year?**

- A** 10 years
- B** 20 years
- C** 30 years
- D** 40 years

### HOW DID YOU DO?

- 10 points** You're a photography mastermind!
- 8-9 points** Fantastic, you're a brainiac
- 6-7 points** Really good score
- 4-5 points** Respectable, but no cigar
- 2-3 points** We'll keep your score secret
- 0-1 points** Epic fail

ANSWERS  
1.A, 2.C, 3.B, 4.D, 5.B, 6.D, 7.D, 8.C, 9.B, 10.D





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